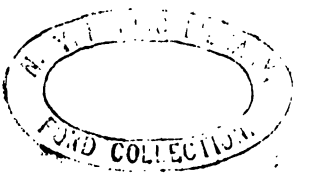

PROCEEDINGS

OF THE

GENERAL ASSEMBLY

OF

NORTH CAROLINA

ON THE SUBJECT OF

INTERNATIONAL EXCHANGES.

SESSION 1848–'49.

RALEIGH:
SEATON GALES, PRINTER FOR THE STATE.
1849.

COMMUNICATION

From the Governor, relative to International Exchanges of Scientific and Literary Works.

TO THE GENERAL ASSEMBLY OF THE STATE OF NORTH CAROLINA:

* * * * * *

In this connection, I likewise present for your consideration, the proposition of Mr. Alexander Vattemare, a distinguished citizen of the French Republic, for a system of International Exchanges, of Works of Literature and Science, and of the products of Nature and of Art in different Countries. It will be found at length in the pamphlet which accompanies this communication. As it contemplates the diffusion of knowledge by the interchange of acts of courtesy among nations, and involves but a trifling expense, I recommend that a small appropriation be placed at the disposal of the Executive, with a few copies of the Revised Statutes and other Public Documents of the State, to enable him to reciprocate for any donations which may be tendered to this State by this gentleman himself, or any of the Governments or Public Bodies of Europe.

WILL: A. GRAHAM.

Executive Department,
December 11th, 1848.

Raleigh, N. C., January 8th, 1849.

MR. ALEXANDER VATTEMARE:

Sir,—We, the undersigned, have the honor to inform you, that we have been appointed by the two Houses of the General Assembly, a Joint Select Committee, for the purpose of inviting you to address the members of the two Houses and the public, on your system of International Literary Exchanges among the nations of the earth. You will, sir, please allow us to express our gratification, on being selected as the organs of the General Assembly, in communicating to you their wish to hear you on the subject of that noble and philanthropic purpose, to which you are devoting the labors of your life. You will also please allow us to express our anxious wishes, that you may find it convenient to address the members of the two Houses, in further explanation of this great and interesting plan.

We are most respectfully, &c. &c.

K. RAYNER,
EDW. STANLY,
J. C. DOBBIN,
D. W. COURTS,
H. C. JONES,
} On the part of the House of Commons.

WM. N. H. SMITH,
WM. D. BETHELL,
W. H. WASHINGTON,
} On part of the Senate.

Raleigh, N. C., January 10th, 1849.

To Hon. K. Rayner, *Chairman of the Joint Select Committee on International Exchanges*:

Sir:

I have the honor of enclosing herewith the list of a few works relative to Commerce, Agriculture, Manufactures, Public Improvements, &c., which I take the liberty of respectfully asking the General Assembly of your State to accept as a very inadequate token of my own country's paternal feelings towards your noble State, and as a mere harbinger of what may be expected from the full realization of the proposed system of the International Union of Nations.

I humbly beg of the honorable Representatives of North Carolina, to consider them a very feeble expression of my heart-felt gratitude for the liberal hospitality with which they have received me, as the unworthy Missionary of this great cause of humanity, peace and good will.

May I beg of you, sir, to be the interpreter of my grateful sentiments towards the distinguished Body of which you are an honored member, and to assure them that I carry with me the liveliest recollection of the kindness, and the highest admiration for the knowledge and eloquence, I was so fortunate as to witness at their ever memorable meeting last night; when inspired by a pure and enlightened patriotism, and laying aside all party feelings, they appeared so happy to find a neutral ground upon which they could conscientiously unite, to work together as one man, in the attainment of objects which involve the moral and physical good of man, the

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propagation of learning, science, art, industry, religion and peace—the only lasting securities for that liberty so dear to Americans.

Believe me, sir, the recital abroad of these facts will increase, if possible, the esteem and veneration of Europe, as well as of the States of the Union, towards North Carolina; who has my most ardent prayers for her continued prosperity and happiness.

I have the honor to be, sir,

Your very humble and ob't serv't,

ALEXANDER VATTEMARE.

The Joint Select Committee to whom was referred the Message of His Excellency, Governor Graham, concerning the Communication and plan of Mr. Alexander Vattemare, in reference to his system of International Literary Exchanges, have considered the same, and have instructed me to

REPORT:

The Committee feel that their labors in the examination of this question are greatly lightened by the partial knowledge which the reading public has already acquired on this interesting subject, from the Newspaper Press. We have sufficient confidence in the intelligence of our people to believe, that a mere statement of the laudable and philanthropic enterprize, in which Mr. Vattemare is engaged, is sufficient to secure for it their unqualified sanction and approval. This stupendous project of a permanent system of international exchanges, of the labors and researches of science and art, in all their various departments, among the nations of the earth, may be considered as nearly consummated. Great and difficult as have been the labors attending it, unfavorable as were the auspices, under which a single individual commenced it; relying upon no other means than the intellect, the philanthropy, the devotion to science and art which existed in the world to sustain him; yet under the untiring exertions and indefatigable labors of Mr. Alexander Vattemare, a citizen of France, it is fast reaching the accomplishment of its beneficent purposes. This system of international literary exchanges may be considered as the commencement of a new era in the progress and dis-

semination of knowledge among men. It belongs emphatically to this age of rapid improvement and discovery, in which destiny has cast our lot. Mighty indeed, as has been the influence of the press upon the institutions, pursuits, and habits of the Christian World; yet, never before, has its blessings and its powers been fully developed. Under this system, the Republic of Letters will soon become one and indivisible; knowing no national limits or sectional prejudices, and bounded only by the confines of Christendom. Men of science and votaries of art, who devote their lives and their energies to the promotion of knowledge, will be the citizens or subjects of no one community exclusively; but will become the denizens of the civilized world. What a stimulus is not this reflection calculated to lend to the labors of intellect! What a noble and disinterested ambition is it not calculated to excite in the mind of the rising generation! What an additional demand is it not likely to create for intellectual effort and scientific research! What a rich and abundant harvest may not posterity reap from its results!

This system, so successfully commenced by Mr. Vattemare, is recommended not only by the benefit it is to confer upon every branch of science, art, and literature, but by the national and social blessings it will produce, and the national and social evils it will obviate. With nations as with individuals, serious differences often occur, from a misapprehension of motives and conduct, growing mainly out of each others peculiar manner, character, habits of thought, condition, and surrounding influences. A spirit of forbearance and conciliation is usually the result of a better acquaintance with those springs of action, that frequently operate with irresistible force upon nations as upon men. With nations, a thorough acquaintance with each others peculiar institutions, and their necessary influence upon national character and policy, is still better calculated to produce a feeling of generous forbearance, under apparent causes of difficulty and complaint. Whilst the knowledge thus obtained by

nations of each other, under this system, appeals to their dispassionate judgments, these tokens of courtesy, amity, and which are to be the subjects of interchange under the system proposed, appeal to the better feelings and impulses of their hearts. How well designed then, is this plan of mutual interchange among the nations of the earth, of each others intellectual labors, scientific researches, discoveries of art, and records and archives of governmental policy, to foster a spirit of peace and concord, to encourage a feeling of respect and even fraternal regard, to teach them their dependance on each other's intellectual labors, and thus cement the bonds of brotherhood and union among the nations of the earth. What a hand-maid will it prove to commerce, that great agent of civilization, of individual comfort and national prosperity in modern times, by thus bringing nations more closely together in feeling and sympathy, teaching them each other's wants, informing them of each other's productions, and affording to them a knowledge of each other's means, appliances, discoveries and inventions, in developing their latest resources. Under the influence of this benign system, may we not contemplate the time, when nations will find it to be their true policy to cultivate peace with all, when the intellect of the world will be enlisted in its maintenance, and when the cultivation of knowledge, science and art, the promotion of man's spiritual and temporal happiness, and the development of national wealth, shall usurp in the heart of the world, the place of that admiration, which is now felt for the conquering hero, who mounts up to fame upon the corpses of thousands, and who lights up the path-way to glory by the blaze of desolation.

The beneficial results of this system before mentioned, are general in their nature, and apply to all the nations of the Commercial World. They appeal to our philanthropy, as belonging to the great community of civilized man. But its blessings and its advantages are particularly applicable to our Country. So far as science, art,

and literature are concerned, we are yet in our infancy, compared with the more enlightened States of Europe. Having a continent of forest to subdue, and an almost boundless country to populate, the practical wants and pursuits of life have kept up such a demand upon our physical energies, that but little time has been afforded for the abstruse sciences, the refinements of the higher branches of art, or the calm and quiet pursuits of literature. Except in the science of law and government, and those branches of art adapted to the ends of practical industry, it would be vain boasting to pretend, that we were not far behind the more enlightened States of the old world. If then, the opportunity is afforded us of partaking of the benefits of a system, which proposes to fill our libraries, our museums, and atheneums, with the rich stores of the intellect and genius of Europe, in exchange for what we may have to give in return, ought we not to rejoice at the good fortune which introduces us, at once, into the great community of knowledge and learning throughout the world; offers to our inspection and perusal, the labors of those giants of mind whose names belong to immortality; and admits us to a participation in all the discoveries, improvements, and statistical data of practical science and art, to aid us in developing the almost inexhaustible resources of our Country?

Its blessings will not stop here. The introduction of this system, and the diffusion of the fruits of intellectual labor in other lands, can not fail to afford a stimulus to science and learning among us. Many of the most philanthropic minds in our own Country think, that we are too utilitarian in our feelings and pursuits—that in the eager race of adventure, and efforts for physical comfort and worldly gain, we look with too little consideration, upon those abstruse sciences, and abstract efforts of mind, from which, after all, are evolved the practical application of knowledge to the useful and industrious pursuits of life. Science is great and tranquilizing in its nature. By encouraging an admiration for its study and its beau-

ties, a counterpoise may perhaps be presented to that restless and agitated spirit, which is the peculiar characteristic of our people. It cannot be denied however, and we must insist, that in the science of government and of law, we have kept even pace with our father-land of the old world. The proofs of this are to be found in our records, our statistics, our archives, our journals, our legislative enactments, and the decisions of our Courts; which contain the materials for our history. These we have to give in exchange; and perhaps there never could be a period, when they would be more acceptable to the legislators of Europe, than at this period of revolution, and constitutional reform. At all events, we may well be proud of what we have to give. We have an abiding confidence, that the diffusion and examination of our State-papers, throughout Europe, will elevate our character for morality, conservatism, patriotism, intellectual power, and eloquence, whether of the bar, the pulpit, or the tribune. It will tend to dissipate many of the prejudices now entertained against us on account of our inartificial manners, and our Republican institutions. This system, therefore, strongly recommends itself to us on the considerations of national interest and national pride. This interchange of the products of intellectual and scientific labor with France, which it is the object of Mr. Vattemare to directly bring about in the first place, is particularly appropriate and desirable at this time. France has again entered upon the experiment of republican government. Whether success or failure attend her efforts, yet she has our anxious hopes and heart-felt wishes, that she may rear her republican institutions on sure and conservative foundations. She may perhaps profit by our example. Let us then afford her the benefit of our labors as embodied in our records, even if we have nothing else to present.

The Committee cannot let the occasion pass by, of awarding to Mr. Vattemare the tribute of praise due to his exertions. By America especially, he should be re-

garded as a great public benefactor. He comes among us, not only to present to us the labors of science and art in other lands, but also to diffuse the practical proofs of the happy working of our Republican system over the old world; thus aiding the cause of Constitutional liberty in Europe, and at the same time enlarging the sphere of our influence, and elevating the character of our country.

In our sister States of the Union, which Mr. Vattemare has visited, he has been received with that consideration due to the great cause in which he is engaged. Honors have been showered upon him by their public functionaries. They have, through him, made donations of what they had to spare of their public archives, and have received in return rare and invaluable additions to their libraries, and to their stocks of recorded knowledge. They have made provision by law, for the permanent adoption and future regulation of this system of Literary Exchanges, by providing for the future printing of duplicates of their public records for distribution abroad, and for paying the expenses of an agency in Paris, for the reception and transmission of books. Will not North Carolina do as much? Shall we allow the intellectual treasures of Europe to be disseminated in other portions of the Union, and to actually cross our limits in their transit to other States, and yet refuse to partake of their benefits? But it may be said, what has North Carolina to give in return? We have our Legislative Journals, to show to other lands, that order and harmony prevail in our deliberations, and that the spirit of conservatism broods over our counsels. We have our embodied Laws and Revised Statutes, to prove that the public prosperity and happiness are the objects of our legislation; and that simplicity and adaptation to the comprehension of all, are the purposes of our law-givers. We have the decisions of our Courts to demonstrate with what obedience we submit to the stern authority of law; and that

in the science of jurisprudence, at least, we are behind no portion of the world.

The Committee, therefore, report herewith, (marked A.) resolutions expressing our appreciation of the objects of the system of Mr. Vattemare; and a bill, (marked B.) providing for the permanent establishment of an agency to superintend its details, and the means of securing its continued operation. The Committee have also procured from Mr. Vattemare a copy of his very able and interesting address on the evening of the 9th instant, which is herewith reported, (marked C.) The Committee have also been furnished by Mr. Vattemare, with a copy of instructions, (marked D.) on the best mode of collecting, preserving, and transporting objects of Natural History, prepared by the Professors and Administrators of the Museum of Natural History at Paris, which is also herewith reported. Accompanying this report, will also be found a list of works, (marked E.) presented by Mr. Vattemare to the State Library.

Respectfully submitted,

K. RAYNER, *Chairman.*

January 10th, 1849.

[A.]

RESOLUTIONS.

Relative to Mr. Vattemare's system of Literary and Scientific Exchanges.

Resolved by the General Assembly of the State of North Carolina, and it is hereby resolved by the authority of the same, That we highly appreciate, and cordially approve, the system of International, Literary and Scientic Exchanges among the Nations of the earth, proposed by Mr. Alexander Vattemare; to the establishment of which, he has so long devoted his energies and fortune, and that we regard it as a wise and feasible means of disseminating knowledge, and preserving the relations of peace among the nations of the earth.

Be it further Resolved, &c., That the meed of our approbation is due, and is hereby tendered, to Mr. Vattemare, for his untiring perseverance and philanthropic labors in carrying into execution his great design; that he has our earnest hopes for his success; that he has our warmest thanks for his visit amongst us, and for the valuable donations in books and prints with which he has enriched our Library.

Be it further Resolved, &c., That there be presented to Mr. Vattemare, as an humble token of our high appreciation of his system, under the direction of the Governor of

this State the following works, to wit: [Here follows a list of works, mostly duplicates in the State Library, directed to be presented to Mr. Vattemare under the direction of the Governor, consisting of Reports of the Supreme Court, Digests of the same, Revised Statutes, Acts of Assembly, Journals of the Legislature, &c. &c.]

Be it further Resolved, &c., That such of the above works as cannot be conveniently furnished from the Library, be purchased and paid for under the warrant of the Governor, out of any money in the Treasury not otherwise appropriated.

Be it further Resolved, &c., That there shall be annually transmitted hereafter to Mr. Vattemare, under the superintendance and direction of the Governor, six copies of all books containing the Journals, Laws, Judicial Reports, &c. &c., and all other works published under the authority of this State, to be distributed by said Vattemare to such of the Institutions and Authorities of France, as he, in his discretion, may select.

[B.]

A BILL

To provide for the support of the system of International, Literary and Scientific Exchanges.

Section I. *Be it enacted by the General Assembly of the State of North Carolina, and it is hereby enacted by the authority of the same,* That the sum of three hundred dollars be, and the same is hereby appropriated annually, to defray the expense of an Agency in the City of Paris, in France, for the purpose of receiving and transmitting such Works as may be the subject of International Exchange between the State of North Carolina and France.

Sec. II. *Be it further enacted, &c.,* That the Governor of this State be, and he is hereby authorized to appoint some suitable person as agent for the State of North Carolina, at the City of Paris, in France.

Sec. III. *Be it further enacted, &c.,* That the sum of three hundred dollars be transmitted by the Governor of this State to such agent, whenever such agency has been officially established; and that said agent be requested to report annually to the Governor of this State, his proceedings and transactions relative thereto—to be by the Governor laid before the General Assembly biennially.

Sec. IV. *Be it further enacted &c.* That one thousand copies of the proceedings of this General Assembly in relation to this subject, together with the Address of Mr. Vattemare, and the "instructions on the best mode of collecting, preserving, and transporting objects of Natural History," be printed, three copies for the use of each member, twelve copies for the University of the State, six copies for Wake Forest College, six copies for Davidson College, twelve copies for the State Library, one copy to be sent to the Governor of each State in the Union, and the balance to be distributed under the direction of the Governor of this State.

Sec. v. *Be it further enacted &c.* That this act shall be in force and take effect from and after its passage.

[C.]

ADDRESS

OF

Mr. GATTENAKE

BEFORE THE

MEMBERS

OF THE

GENERAL ASSEMBLY

OF

NORTH CAROLINA,

AND OTHERS.

Mr. Chairman, *and Gentlemen of the Senate and House of Commons*:

It is with profound respect and heart-felt gratification, that, in compliance with the kind invitation tendered to me in the name of the General Assembly of your State, I present myself before this honorable and enlightened meeting, assembled for the purpose of considering a system of International Exchanges, whereby the Literature, Science, and Art of the whole earth may pass from nation to nation; and (as a means, without which the proposed system would be unavailable,) the establishment of corresponding institutions in every part of the civilized world. This requires from me, as the humble originator of that, which has been called "a munificant contrivance for bringing all the nations together," that I should enter into some details, concerning the character, the progress

and the probable results of the plan. In doing this, I shall be *obliged* to speak of myself, and, therefore, I hope I may be pardoned for speaking in the first person, while showing how I have been led, step by step, as it were, into a belief in the *practicability*, as well as usefulness of the scheme. A simple narration of the leading circumstances, will, I think, be sufficient.

Partly owing to a natural bias, and partly to the nature of early education, I had always a fondness for the relics and doings of the past; and from my earliest recollection was a frequenter of libraries and museums, and a collector of coins and medals. In 1815, circumstances led me to the choice of a profession which continued year after year to open for me all the capitols of Europe, with their libraries, collections, museums and treasure-houses of ancient lore. It was not long before I had become familiar with all the wonders they contained. It fell to my lot, in the progress of these researches, to discover many priceless antiquarian relics, the very existence of which was unsuspected by their proprietors; and at length I found that I had brought myself acquainted with what, after all, may be regarded as the foundation of my system—the *deficiencies* and *superfluities* that existed everywhere, in the old world. Often have I found duplicate copies of books, which were looked upon as mere rubbish in one city, while in some other city, not far off, those very books were indispensable, perhaps, to complete a collection. At other times, I have found stray volumes of the same original books, scattered over different kingdoms; and occasionally works of the utmost importance to the historical collections of one country, preserved in another, where they were matters of little or no interest. So with coins, medals, &c. For instance: I found in the Town Library of Aix, in France, in the department of Manuscripts alone, fifteen MS. concerning the city of Lions, twelve concerning Paris, five concerning Metz, three concerning Strasburg, and six concerning the city of Geneva, in Switzerland; while, in the

progress of my inquiries, I found that the public libraries of the very cities of Paris, Lyons, Metz, Strasburg and Geneva, contained manuscripts and documents concerning the town of Aix. Again: In the Town Library of Arras, I discovered splendid fragments of an historical manuscript relating to Great Britain, and written by no less a personage than the "venerable Bede" himself; the remainder may perhaps be found hereafter in some obscure collection in England or France.

I found moreover, in the Arsenal Library of Paris, the first four volumes of the celebrated Romance of "The Four Sons of Aymen," a work written in the fifteenth century, and generally supposed never to have been completed. And yet, I have found the fifth and last volume of that very work in the Royal Library of Munich (Bavaria.) At another time I stumbled upon a work of great value to the Germans, being an early history of their troubadours, minne singers. But where? in the heart of *France*, where it only helped to swell their collection of unprized volumes. I found, also, at Dijon, in France, the archives of Savoy, of inestimable worth to the country where they by right belonged, of little comparative worth where they were discovered.

In Lapland, the second volume, in manuscript, of a history of the Dukes of Burgundy, written in 1400, was found, while the first was known to be in the Town Library of Lisle (Flanders.) The private collections I have visited, or in a measure ransacked, were often found as rich and as little understood as the public ones. Take a single example out of no less than eight hundred visited by me in France; that once belonging to the Baron de Joursanvaulx, at Pomar, in Burgundy. In this magnificent collection are to be found more than 500,000 charters and historical documents, among which are many relating to English history during the English occupation of a part of France in the fourteenth century.

Wherever I journied, I found libraries and collection of priceless worth, which seemed never to have been heard

of out of their own immediate neighborhood. Every where too, I have met with documents and manuscripts entirely out of place, the dislocated members of many a distant body. For instance in Breslow, Silesia, I came upon one of the most beautiful manuscripts of our illustrious historian, Froissard, and at St. Petersburgh, upon no less than seven large folio volumes of original letters from the kings of France; and in Berlin, upon a splendid historical manuscript of the celebrated Abbe of Cleigny, France, written in the thirteenth century.

I found, also, at Magdeburg, Germany, in a private collection, the ritual of the Cathedral of Nevers, (in France,) a truly gorgeous manuscript executed in 831, by order of Hugh the Great, 3d Bishop of Nevers; a most splendid specimen of French penmanship at that period.

At Manheim, Germany, I found a wooden book written in the Runic character, between five and six hundred years ago by the Northmen; this I have brought with me to your country, to compare the characters, with those upon Dighton Rock. If identical, the circumstances will go to justify the declaration of the Royal Antiquarian Society of Copenhagen, that the Northmen actually landed in Rhode Island in the year 1000.

This precious book, belonging to me, I gave to Gen. Cass in 1844, for some scientific establishment in the U. States; and it was placed by the General in the University of Michigan, at Anna Horbor.

At Philadelphia, I found a large port folio of original letters from James I of England to his Lord Lieutenants of Ireland. At Baltimore, a quantity of original letters from the stadtholders of Holland to the kings of England, during the 17th and 18th century; and in 1844, in the possession of a gentleman at New Orleans, the original grant of Charles the 2d to *William Penn*, together with a contract in the hand-writing of William Penn himself, granting 20,000 acres of land on the very spot where the city of Philadelphia now stands. These documents are

dated 1681. I took a *fac simile* of both, for the city of Philadelphia.

What treasures of this nature! what precious manuscripts by the fathers of the church! what piles of documents concerning the lower Empire, and even the earliest period of our own history, may not be found in Greece and in the convents and monasteries of Russia, where the christian monks, flying from Mehemet the 2d, sought an asylum, carrying with them, what they could save from the destroyer, of the treasures entrusted to their guardianship. The monastery of Mount Arrarath and other Armenian convents, possess many of these instimable relics; and we may hope, thanks to the enlightened protection of the Emperor Nicholas, to obtain at least a catalogue of all these treasures, without which a knowledge could not be had of what is buried in their almost inaccessible regions. It is more than probable, that, in the progress of a liberalizing temper throughout the world, the signs whereof are all about us, brightening the horizon of the future, and filling all hearts with hope, and warm encouragement, that multitudes of precious historical and scientific documents may be found in the libraries of Mount Athos, of Pathnos, of Jerusalem and Constantinople, where are still located the wrecks of the celebrated Alexandrian Library, which were saved at the tremendous conflagration, transported to Constantinople, and there deposited in the Library of the Seraglio. *Serim Effendi*, a learned and distinguished minister of the interior, for the Turkish Empire, from whom I obtained this information, assured me that, in his opinion, it would be quite possible to obtain these precious works, in exchange for objects of more immediate interest; since the Turk, who studies neither Greek nor Latin, is sufficiently familiar with the modern languages, and the sciences and arts of our time; and we are assured by the zealous Mahomedan referred to, that "*it was not the Turks, after all, who burnt the Library, but the Christians themselves, for the purpose of rendering the Turkish name a bye-word and a*

reproach throughout the earth; and that in fact the little that was saved from this great burnt offering to the genius of barbarism, was snatched from its altar by the Turks."

How far we are to believe this hyperbole is the question; nevertheless, this mere attempt to clear themselves of such vandalism, is a strong proof of the progress of civilization and liberality in Turkey.

I found every where in the collections of printed books, the same superfluities and deficiencies.

Allow me to mention a few only of the multitude of Libraries I have had occasion to visit in the North of Europe. In that of the University of *Yena*, in Germany, I found no less than 18,000 *Duplicates;* in that of Wolfenbutel (Duchy of Brunswick) 15,000; in the Royal Library of Berlin, 25,000; a great number of which were presented to the National Library at Athens, in Greece, by the present King of Persia; in the Imperial Library of St. Petersburg, 50,000; in the imperial Library of Vienna, 60,000; among which was a great number of *incunables* or *incunabula*, viz: of Books published from between 1457 and 1520. within the first 63 years following the invention of printing, and therefore greatly prized by antiquarians and book collectors. The Royal Library of Munich, in Bavaria, contained no less than 200,000 duplicates, which were huddled together in garrets, as so much useless lumber, although of a character to render them valuable in other countries.

The Circular issued in Paris by the Minister of Public Instruction, after the National Legislature of France had sanctioned the system, brought forth from the dust of 384 public libraries, *open to the great body of the people without charge, all over France*, 16,000 duplicates, *in less than six months!* and gathered the whole at a common centre, for re-distribution to those places where they were most needed. In fact, such was the extraordinary accumulation of these duplicates, in this short period, that the circular had to be countermanded, until those already received could be classed and arranged—the

place of deposit being found too small for such a store house, and such a treasure. *The Collection* of ancient and modern medals, of works of Science, and Art, of models, and specimens of natural history, was also crowded to overflowing. From the Bresilion entomological collection, at Vienna, there were obtained more than $5,000 *Duplicates.*

Our Paris mint was found to possess dies to the value of nine millions of dollars—historical medals, among which, a great number concerning the United States of North America, from which millions of duplicates might be struck at pleasure. Your own mints, at Philadelphia, could furnish similar advantages with the dies of the medals of the Presidents, memorable events, &c.

Let it be borne in mind, while following out these few details of the proposed system, that scientific establishments bear the impress of a special and exclusive character: and that in every library, faithful images of the country wherein it originated, are always to be found—traces not to be mistaken of its birth place and history. But while these collections abound in specimens of native productions—the most important foreign specimens —works of science and art, &c. &c., are wanting; and this, even, while the same causes tend to their accumulation, where they are not wanted, or not understood, or worse than all, not accessible to the inquisitive spirit of the age.

And so with museums and larger collections; every country multiplies, and accumulates, for itself, and this exuberance of local wealth but serves to render the squalid poverty we see on every side of it the more appalling; and but for the system of exchanges now beginning to prevail throughout the world, absolutely discouraging.

But above and beyond all this—and to the remarks I am now about to offer, I pray your earnest attention—above and beyond all the mischief, thus far complained of, let us remember, that inexhaustible riches, thousands,

and perhaps millions, of precious records are literally buried in the dust of ages, and withdrawn from the proper channels of circulation, so that whole nations are impoverished. The man who buries gold is justly reproached for the act, for by withdrawing so much capital from circulation, he wrongs the laborer and robs the great mass of the people. To withdraw knowledge—to bury wisdom and science, cannot be much less culpable, nor much less disastrous.

But this condition of things may be changed: these evils remedied. By judicious and persevering efforts, and with little expense, these unregarded, and situated as they are, *useless* duplicates may be coined into treasures, altogether beyond what could be hoped from the munificence of Legislation. We have but to establish a general, just, active and well regulated system of exchange, or interchange throughout the world. This has been already established in Europe and Asia, for it was felt that bounds are not to be imposed to science and thought, and to the progress of human improvement, corresponding with the impassable barriers and frowning fortifications, that politically separate and hold apart the nations of the earth; that all who worship at the same altar, in the same temple, are brethren; that political divisions and sectarian quarrels are not to find place among the worshippers of Science and Literature; that the discovery of one is the triumph of all; and that, thanks to this great brotherhood of talents, this federal union of intelligence and wisdom, the cultivation of science and the arts, is found to enlarge continually the empire of civilization?

With these views and this experience, I first projected a system of exchange between nations; which, without charge to the State, or at most at a charge comparatively trifling, the separate and local libraries and collections would become *universal*. There would be a resurrection of the past,—a gathering together of the works of all times, countries and languages. Every people, and ev-

ery epoch would be represented, and Science, History, Philosophy, Art, and Literature, would then have their appropriate dwelling places and altars, among our homes and our household gods. The museums of the fine arts and of natural history would multiply and expand, and these vast and numerous collectiens go on with a continually augmenting power.

The governments of the old world answered the appeal not sluggishly, nor in whispers, but at once and by acclamation. They paused not to question *the authority of the obscure individual* who gave the challenge. They saw in the scheme itself, and in the facts he presented, more than sufficient to justify his presumption; they were glad to establish a system of intellectual commerce, for the mutual interchange of all that could minister to the happiness of man, or the security of empire throughout the world. A treaty whereby advantages are secured to all—*a treaty wherewith the passions have nothing to do—a treaty which all have alike interest in regarding as inviolable*—springs up of itself out of the scheme, and, gradually extending itself, must one day or another, and at no *very distant day, bind together all nations, and kindreds, and tongues.*

Would such a treaty be dangerous to any, or inglorious to any? Would it not be a monument to themselves built by the governments of all the earth and supported by the people? For years the public press of both worlds has continually resounded with the progress of the system. Within the last twenty years more than 500,000 exchanges have taken place; thousands of volumes have been withdrawn from darkness and the dust, and countless libraries enriched by these exchanges, while nobody has been taxed, nobody empoverished; missing volumes have been supplied, mutilated series made perfect, and countless volumes whose loss had been deplored.

Exchanges have taken place between Moscow and Lisbon, Madrid and London, Rome and Constantinople—Paris and the rest of the old world.

Congratulations have been addressed to the author of the system from every quarter of the globe; by Emperors, Kings, Cardinals, Arch-bishops, Bishops, and the Clergy of all denominations, and alike from the absolute and the representative governments—all manifesting their solicitude for my success, and their exalted approbation of the scheme. From these, only four among more than two thousand of these letters and testimonials, I shall take the liberty of reading a few passages, with your permission. They are selected on account of the worth and standing of the writers. The first is from Aehmed Fethi, *Pacha*, a Turkish field-marshal, and the intimate friend of the late Sultan Mamouth, now the Prime Minister of the Turkish Empire. The letter itself is in the hand writing of the Pacha, and written in the French language.

"It is a glorious thought and does honor to your philanthropy to attempt to manage the exchanges of national intellect by means of commercial reciprocity in the riches of genius and industry. Be assured, sir, I shall make it my special duty to communicate your plan to his highness, the Sultar, whose extensive knowledge, united to his love for the people, will enable him to appreciate the immense advantages which will result from the existence of such an intercourse between governments; an intercourse which would infallibly lead to the abolition of those national prejudices, the offspring of selfishness and *ignorance*." Not bad for a Turk! this *barbarian*, as we civilized people might be inclined to denominate him, has contributed much towards the establishment of this system of exchange between his country and the governments of Europe.

The next is an extract of a letter written by General Colletti, Prime Minister of that nation which had so long breathed the atmosphere of blighted hope, as to be thought extinguished and utterly incapable of regeneration. Yet here she is!—here in the very first rank of enthusiastic enterprise—faithful to the memory of the past, she steps

forth at the first call, and pledges herself to the future. The letter addressed to me by that able minister, in 1838, concludes thus: "May your projects soon be realized. Greece, which has contributed so largely to the civilization of Europe, and whose master-pieces, buried under the rubbish of so many centuries, are now coming forth from their tombs—Greece will not be among the last to applaud your labors, nor to second them with all her might—as for myself, minister of that nation, I shall always be pround to remember that I have been among those first invited by you to combine for the accomplishment of your great scientific enterprize."

Anxious to open such intercourse with the United States of America, the Greek Government transmitted last year, to Congress, a collection of Legislative proceedings, Historical Documents, &c., of that young Kingdom. Answering to their wishes, I was instructed by the Library Committee, to present to the Legislative Body of Greece, a collection of Little and Brown's new edition of the Statutes at large, the American Archives, Congressional Documents, &c.

A learned Persian, after having expressed his admiration of the system in the most exalted terms of Oriental hyperbole, anticipating the consequences, and predicting the final results, says, that like the cup of Alexander, this system will show the Universe together as in a looking glass; and concludes as follows, "*the worst of all disease is ignorance.*

* * * * * *

I had, it is true, procured the approbation of almost all the governments of the old world, but it had yet to pass through its greatest trial; to be passed upon by another tribunal from whose judgment there is no appeal—I allude to England and France. Here was the Rock upon which all pernicious and visionary schemes were sure to be cast away. You are, I believe, acquainted with my success in these countries—and with the encouragement I have received from both. The memorial I addressed to

the House of Commons, was presented by Lord Sydenham (at that time Mr. Poulet Thompson) President of the Board of Trade. He was seconded by Sir Robert Peel. That offered to the House of Lords, was presented by the Marquis of Landsdown, President of the Council of Ministers, and was seconded by the Duke of Wellington. Her Majesty the Queen ordered her gracious approbation to be communicated to me, and the most cordial encouragement and congratulations were addressed to me by the Archbishop of Canterbury, by the Trustees of the British Museum, by the Royal Society, and by most of the learned Associations of the British Empire, all uniting in opinion respecting the importance and usefulness of the system proposed.

At home—in my beloved country—its reception was, if possible, yet more glorious and satisfactory. My memorial to the Legislative Chambers was received with the warmest demonstrations of enthusiasm by both, and was recommended literally by acclamation to the Ministers of the Interior, of Public Instruction, and Foreign Affairs. A few days after this extraordinary procedure, a proceding without example in our Legislative records, I received a letter from the Minister of Public Instruction (then Mr. Guizot) of which the following is an extract:

"It is impossible Sir, that the government should not entirely approve your project and do all in its power to forward its accomplishment. The general acclamation with which the two Chambers of France, and the Ministers, have received it, and their exertions to promote its success, can leave you no doubt of the importance the government attached to it, and of the immense results they expect from it."

The day after the glorious reception of the system by the House of Peers, the most honorable and flattering testimonials of approbation, began to pour in upon me from all quarters of the Empire. Peers, deputies, members of the French Academy, members of the Institute,

almost all the Learned Societies, voted me diplomas or thanks, and to complete the happiness of that day—for after all the approbation of our own country is dearer to us than that of any or all others—the *ministers of religion came forward to consecrate, encourage, and bless the undertaking*, and his Grace, the Archbishop of Paris, wrote as follows to me on the 16th July, 1836:

"With all true friends of science, letters and the arts, I have applauded the system of exchange which you propose to establish between all scientific institutions existing in the civilized world. The success of your petition upon that subject to the legislative Chambers of France, is eminently calculated to encourage the great enterprise: the mere attempt to establish it, is sufficient to immortalize the name of its projector. The perfection of this system, creating new social ties between nations and societies—it would be desirable that its destinies should be committed to some corporate or learned Association whose existence is perpetual and whose means are more appropriate than those of private individuals, to accomplish so happy a result. Above all things, its direction must be under the control of virtue and wisdom. The inordinate love of the knowledge of good and evil, has been the perdition of the world from the beginning. The exchange of mental poisons, therefore, would be of little good to the world, unless there could be found a literary homeopathia, which should have the power of neutralizing the diseases occasioned by bad books and the productions of depraved imaginations.

"Religion has nothing to apprehend from this system. Religion is a celestial plant, whose perfume is like the precious balm, and whose flowers are those of the sweetest myrrh; its branches are the growth of glory and of goodness. There can be no danger then, in seeking to spread what its spirit has produced in *all times* and among *all nations*. *Those who like you, sir*, seek to propagate its principles, will enjoy everlasting life as a reward for their labors.

"Hoping that these words, which I quote from our holy book (Eccles. c. 24,) may strength you in your enterprise, permit me to wish that you may, even in this world, receive the reward due to your zeal and perseverance.'

And now, Gentlemen, you are qualified to judge of the importance and utility of the enterprise—you see now it has been appreciated elsewhere, as the true *Philosophic Stone* which converts whatever it touches into something of more worth than gold, in as much as wisdom is better than fine gold—*giving to all* and taking *from none.*

The largest institutions of the old world entered into the system at once; and so rapid, and so extensive, was its progress, that the illustrious Lamartine, *characterized it as the "great Locomotive of universal civilization."*

Having established a permanent system of exchange between all the governments of Europe, having caused communication to be opened with the extremity of India, with Turkey, Persia, Greece, the engine was proceeding of itself to the ends of the earth, as I thought: and believing that I had accomplished my task, and fulfilled my destiny—a task to which I had devoted ten whole years of my life—a destiny to which in the out-set I had no pretensions—I withdrew to the bosom of my family in the hope to pass the rest of my life in peace and at home.

But there was still something to do, on the other side of the Atlantic, for there were members of the great human family, for whom I felt a sympathy, natural to all Frenchmen toward their American brethren. I was anxious to bear to them a branch of my system, an emblem of universal peace and brotherly love. I was doubly anxious to see them taking their pre-appointed place in the great Commonwealth of science—and a people who hold in charge the destinies of the new world, entering into the holiest of holy alliances, for the preservation of all that is dear to man.

My anxiety was further augmented by the advice of an illustrious man, who deigned to honor me with particular favor, *General Lafayette.* How often has he said

to me, "the execution of your plan will produce invaluable benefits to the old and new world. Go to America, Go to America!"

To accomplish this self-imposed mission, I left home in September, 1839, and landed, for the first time, on your hospitable shores, in October. When very young, and little acquainted with modern history, I visited Turkey, Russia, Austria, Prussia, Sardinia, &c. &c., and found every where, even in the smallest towns, splendid establishments, founded by the munificence of what are called despotic Sovereigns—Libraries, Museums of Antiquities, Galleries of Paintings, Botanic Gardens, Public Lectures by the first Professors in the world—and all these Temples of Sciences, and of the Arts, *open to the people every where without charge*; and without any distinction of race or fortune, a magnificent Public Treasury, of which all might avail themselves with equal right, whether rich or poor. I believed that *there* existed the only pure Republic on earth—the Republic of Letters—where, instead of being oppressed and trodden under foot, the people were encouraged to stand up like men, and avow themselves of the same blood and lineage with Kings.

Surely, said I to myself, if such be the encouragement vouchsafed to learning, and to learned institutions, for the sake of the people, by absolute monarchs, what may I not look for among the sturdy, stout-hearted Republicans of America? What generous foundations—what a resolute and healthy self-respect, I am sure to find among the people of the New World! What vast public libraries! What museums! What institutions of every kind, founded by the people themselves, for the use of the people, through the direct agency of their State Legislatures.

Judge of my disappointment, when I found on my arrival, with all these visions of glory in my heated brain, that most of your *public* institutions, were in sober truth *private*; that pursuing that once illiberal system of your mother, old England—you had preserved in these institutions, what I could find no where else among you—a

truly privileged class, who valued not, because they understood not, their own privileges—a permanent *aristocracy*. And this in the very constitutions of establishments so essentially democratic every where else on earth —an aristocracy wasting by slow decay! Many of your scientific institutions are languishing for sympathy and encouragement, and others, long founded, falling into ruins without notice. Public, or town libraries, bolted and barred from the public—and the owners caring but little for their preservation; and this in a country so young as this great sisterhood of Republics!

Yet more, I found the majority of your museums degraded to *raree shows*; places where the people betake themselves but for idle pastime, and that not always of a creditable kind; places where the accumulated wonders are heaped together by cart loads without any pretensions to scientific arrangement; where objects of real interest to the antiquarian or naturalist, are completely buried, or at least overshadowed, by the merest rubbish —gems in the scavenger's cart—here a variety of monstrous wax figures; and there scientific lectures, a ropedancer, a learned pig, or a conjurer, calling crowds of people together as a puppet show, in a place, which in other countries, you find consecrated to silence and meditation.

How often have I found rare and precious specimens from the animal or mineral kingdom so completely disfigured or embellished as to puzzle a naturalist; and how could it be otherwise, and how can you ever hope for any thing better, so long as these institutions are in the hands of men, who regard them as contrivances for making money? and so long as the word *admittance* is found to be synonymous with *twenty five cents*. No wonder the poor boy gave the latter for a definition of the former.

Many of your institutions are founded in a paroxysm of generous enthusiam—only to perish afterwards for lack of bread and water. A public meeting and an ele-

quent speech or two—a generous collection,—up goes a magnificent building—out of all proportion to your wants for a quarter of a century perhaps—at the end of which time, it falls to pieces of itself, or is knocked to pieces by the auctioneer's hammer! Splendid meteors that but dazzle to betray. Were you less liberal at first, and much more persevering afterwards—less enthusiastic of your thousands and not quite so careful of your tens—your country, yourselves, and your children, would be all the better for it. Why spend *all* the money collected upon the mere foundations of a building? Why spend so much upon your cage that you cannot afford to buy the bird? So much upon your purse that you have nothing left to put in it? So much upon your cottage that you cannot afford to get married? There are such things in this world as creditors—landlords; hard hearted men, who cannot afford to starve their families for the sake of the sovereign people. After a time, these creditors become clamorous, and your institution goes to somebody who holds a mortgage perhaps for a title of its value—or it is put up at auction, and its treasures are scattered piece meal to the four winds of heaven.

But your library system is not much better. Look at your public libraries, to which the public are never admitted—are they not all founded upon the most unrelenting and dangerous of all distinctions—*that of money?* You are a proprietor—a member, or a trustee, but you never set foot within its walls perhaps, or you belong to it, only because you happen to forget yourself in a moment of enthusiasm at a public meeting, where you chanced to occupy a pre-eminent seat, or to be appealed to by *name*, and have never yet forgiven the chairman, the speaker, or yourself.

Another bad feature I find in them. You have not only to pay your initiation fee or price of membership, you must expose yourself to being *black-balled*, or in other words, *rejected*, by people no wiser, no better than yourself.

Consider what immense benefits would arise to your country, if honest, well behaved though poor young men, who are gifted by their Heavenly Father with glorious instincts of genius and virtue, were freely admitted to institutions of an enlarged and permanent character. Every kind of talent would be sure to find its appropriate stimulus. Now the inextinguishable fire is smothered, until many a "mute inglorious Milton" may be found in the Alms House, and your Czars and Alexanders, not even so much as "the best wrestlers in the green."

Such was, as far as I could then ascertain, the state of things on my arrival 8 years ago. My first sentiments, therefore, were those of despair; for I found no public institutions like our own, open free to the public; nothing founded by the people, *for* the people; and therefore, no means of laying the treasures, which I proposed to bring into the United States, before the people. But when I conversed with the citizens—when I found myself hailed with acclamation—when thousands thronged to hear me narrate what I had to communicate—and the good and the great, the gifted and the wise, without reference to religious or political distinctions, came to the aid of my scheme, I found my heart lifted up with joy and hope, for I saw that what seed I might sow, in my humble manner, would not fall upon barren ground; and I awaited the harvest.

My mission was no sooner known than I had crowds of listeners. Both houses of Congress, in the midst of a most agitated session, passed a law approving my scheme; while all the members, without a single exception, appended their signatures to a document previously signed by the President and his cabinet, enlisting themselves in my cause, and pledging themselves to do all in their power to contribute to its success. Here you will see the names of men from the snow-clad hills of the north—the sunny glades of the south—the rock-bound coast of the Atlantic, and the solitudes of the far west—laying aside sectional feelings and party ties to meet upon *neutral ground*.

John Quincy Adams and Martin Van Buren, Clay and Benton, Webster, Paulding, Preston, Forsyth, Crittenden, Bell, Spencer, and other distinguished men, stopped in the midst of their angry discussions and ephemeral conflicts, to attend to an object of a higher and more permanent nature, for it involved the moral and intellectual improvement of their nation—yes, my friends, the real and physical good of man, the propagation of sciences, the arts, industry, religion, union, peace, prosperity,—nay, that liberty which is so dear to Americans.

The most distinguished citizens, wherever I went, lent me a helping hand. All the most illustrious and celebrated authors and artists presented me, with profuse hand, copies of their works and labors, forming a collection amounting to upwards of 1,800 volumes of books, 500 engravings, 250 original drawings, many specimens of natural history and mineralogy, (among them a piece of native iron, weighing 2,500 lbs.) and several interesting relics of the aborigines. I left in June, 1841, for France. Need I add, after what I have narrated, that I carried with me a grateful sense of the intelligence and virtue of the American nation.

I returned. I had much to perform. I had to show the people of France what steps America had taken, and to give them the books, maps, documents, objects of natural history, &c., entrusted to my care—giving to each library those works most valuable to its peculiar department. I distributed them among the nine Ministerial bureaux, the legislative chambers, the City of Paris, the Academy of sciences, the Academy of moral and political sciences, the Museum of natural history, the Royal school of mines, and other public institutions. They were, in every instance, thankfully received, and letters were not only addressed to me by the proper authorities, expressing their desire to see a system of exchange established upon a wide and permanent basis, but many thousands of books, (mostly rare and valuable works), have already crossed the Atlantic.

In the course of sixteen months, America transmitted to France 1,267 objects, and received in return 3,894 others, making a total amount of 4,726 books, &c., exchanged between the two nations from 1845 to 1846—the Supreme Court of the U. S., the honorable Secretary of war, the States of Maine, Massachusetts, New York, Indiana, Michigan and Virginia, with the Cities of Baltimore and New York, being then the only respondents to my call, by transmitting important works and voting generous appropriations to pay the necessary expenses. Since that time, these exchanges have considerably increased, not only scientifically speaking, but, above all, in the warmest brotherly feelings between these two nations.

The 10 or 12,000 books, 3,000 maps, 200 medals, 200 engravings, the Statutes, &c., I brought out with me from France, were given to me in exchange for similar objects, which I had presented in behalf of America. Among these latter, I received from his Excellency, the Keeper of the Seals, *Minister of Justice and Religious Worships*, several Series (about 400 quarto volumes) of Statistical Reports relative to the Civil, Commercial and Criminal administration of Justice in France. In transmitting the above, the Minister expressed his hopes, that the States of the Union, always ready to adopt any measures calculated for the moral improvement of the human race, may follow this example, by publishing annual reports of all civil, commercial, and criminal causes, tried by the different Courts of each State, a copy of which would be transmitted by the Secretary of each State to Washington, and from which, a kind of annual, general, criminal, &c., statistic of the United States, (such as the one issued by his department,) might be published by the federal government.

Such publication, gentlemen, would, in my humble opinion, have an immense moral influence, for it would certainly create a generous and benevolent competition, not only among the States of the Union, but among those

of the civilized world, who would feel anxious to reduce every year the size of such reports. Saying nothing of the security, the knowledge of the state of morality of each one's neighbors would offer to their mutual safety.

In addition to the above mentioned documents, I received from the same Minister, a complete copy of the *Journal des Savans*, the first six folio volumes of the celebrated publication of the Oriental Manuscripts, preserved by the Royal Library at Paris, the collection of the Reports of the *Cours de Cassation* (Court of Errors.) about 100 volumes, and the continuation of the Bulletin des Lois, both destined to the Supreme Court of the U. States. From the Minister of the Navy, in addition to all the documents and works relative to the naval department and the colonies, exploring expedition, &c., more than 3,300 hydrographical charts. From the Minister of War several collections of all the works and documents published by his departments, relative to military administration, to the French possessions in Africa, &c., with about 200 maps. From the Minister of Agriculture and Commerce, about 2,200 volumes, forming several collections of works on agriculture, commerce, industry, manufactures, &c. In transmitting the above collections, His Excellency invites me to communicate to his department every possible information relative to the industry, commerce, manufactures, navigation, agriculture—in a word, the most complete statistical account of your beautiful country, I shall be able to procure; the intention of the Minister being, *to have the same printed in the Official Bulletin of Commerce and Agriculture*, published by his department. I therefore make an appeal to the patriotism of North Carolina; at least to some one of the citizens in city, village, township, or county in the State, to the following questions: each person in his answer adopting the subject, concerning which, his knowledge is most certain and accurate.

The geographical and historical description of their city, township or county.

Its population (since the last census.)

Its municipal administration, &c.

Its agriculture—its principal productions.

Its industry, commerce, manufactures; its commercial establishments, such as banks, assurance companies, coast trade, &c.

Its railroads, roads, canals, &c.

Its mines, coalpits, foundries, &c.

Its ship-building, navigation, &c.

Its scientific establishments for the diffusion of knowledge, such as universities, colleges, public schools. (How are they supported?)

Its *public* and private libraries, scientific societies.

Its religious denominations; number of churches.

Its charitable institutions; deaf and dumb—blind institutions; hospitals, houses of refuge, prisons, &c. Temperance, its statistical progress.

Its literature; original works published either within the city or State; the native American celebrity of the same; remarkable historical events, &c.

The natural history of the State; its birds, fishes, reptiles, &c.

Its vegetable and mineralogical productions, or natural curiosities.

By *conscientious and exact answers* to these questions, I am certain to conquer for America the good opinion and the admiration of the whole of Europe. Whatever may be the degree of knowledge, which, as a nation, we possess of our own merits, I hold that it is the duty of

every true patriot to communicate that knowledge to other nations; for the conquests won by such arms are the most glorious and the most lasting that can be made.

The letter from the Secretary of Commerce, containing the above request, terminated thus: *"It is important, sir, that, from day to day, these facts should be better known and appreciated on both sides, and that our intercourse with the United States should become more easy, more frequent, and more intimate. This end must be attained, not only for the interest of our respective countries, but likewise for the security of the peace and welfare of nations in general. The efforts you have already made to obtain such results, are the best guaranty of the success your present labors are sure to meet with on the other side of the Atlantic."*

The Ministers of War, Navy, Public Instruction, Interior, and Public Works, contributed most liberally their shares, of the objects of art, science, political economy, &c., &.; suggesting from their respective departments, expressions of their warmest feelings towards the United States.

From the city council of Paris, I received about 300 volumes of documents relative to the municipal administration of this great metropolis, destined to the cities of New York, Boston and Baltimore.

In a letter written to me by Count Rambuteau, first civil magistrate of Paris, dated November last, acknowledging the receipt of books which I had presented in the name of several States, I found the following:

"These works, sir, in consideration of their intrinsic worth and importance, as well as the lively recollection of fraternal feelings attached to them, require from us a distinct and striking proof of our esteem. In consequence, we have, according to your wishes, decided that they should occupy a special and separate room in the library of the city of Paris."

Thanks to this decision, one of my greatest desires is obtained; for we shall have, hereafter, a special and permanent exhibition of American genius, in the most splendid mansion of the metropolis of the old world!

All the scientific establishments, public and private, without any exception, have most cheerfully contributed, by numerous and important offerings, to the establishment of this enlightened intercourse I am endeavoring to form between the two hemispheres. Mechanics of all descriptions have made most laudable sacrifices to give proofs of their feelings towards my labors; and a *common book-binder*, among others, anxious to bring his mite to the edifice of our intellectual union, brought to me, a few days *before I left Paris* for America, a superbly illustrated work, requesting me to accept it, to be preserved as a token of fraternal love for his brothers—the mechanics of America. (This work must have cost him at least $20 —a considerable sum for a poor man.) I presented it to the Library of Congress.

The cities of Lyons, Rouen and Nantes, are preparing collections to be forwarded to me here, in return for what I presented to them, as tokens of their ardent desire to see a scientific bond established between them and the several cities of the new world, upon a *strong and lasting basis.*

I will terminate by mentioning the legislative chambers —the true and mighty organ of the French nation—who have always encouraged my labors by their warmest approbation and by their generous contribution to help the realization of my system—having already received from them more than 2,000 volumes; among which are to be found copies of some of the most beautiful and important scientific works ever published in France. The following is an extract from a letter, addressed to me by the Questors of the Chamber of Deputies, in the name of the Legislative Chamber.

"It is to you, sir—those efforts inspired by your patriotism and enlightened philanthropy, that we are indebted

for the establishment of this new intercourse *between us and the American Union*. These reciprocal interchanges of the production of human genius, which you have succeeded to establish, must, in accelerating the progress of civilization, powerfully contribute to increase the ancient fraternal feelings already existing between the United States and France. We could not, therefore, but joyfully welcome a system so fruitful in glorious results, and we are happy to contribute to its realization by the above mentioned collection we have the honor of addressing to you *in the name of the chamber.*"

Desirous before my leaving Paris, in case it would be among the designs of Divine Providence I should see my beloved country no more, to deposit my American documents in a place becoming their worth and importance, I could not, I think, have chosen a better one than the bosom of the French nation, represented by the Chamber of Deputies. The following is the answer I received from the honorable questors in relation to my proposal:

"SIR:—

"We have received your letter, dated February 3rd, last, in which you propose to us to accept the deposit of the American official documents relative to the foundation of the exchanges you have so successfully established between several States of the American Union and France.

"These documents evience the enthusiasm with which numerous populations in another quarter of the globe have welcomed the noble and generous idea which brought you among them, and which induced them to give additional proofs of their friendly feelings towards France, by the initiative they took in the creation of this new intercourse. Such documents, sir, ought indeed to be considered as a precious portion of the inheritance you will leave to your children.

"We accept, *in the name of the chamber*, the deposit you are desirous to entrust to us, and which will be put at your disposal, when, after having given to your enterprise

all the extension and consistency of which it is susceptible, you will return to your native home to enjoy, for a long series of years, the esteem and gratitude of your fellow-citizens.

"We beg of you, sir, to accept the assurance of our feelings of esteem and high consideration.

The Questors of the Chamber of Deputies of France.

Signed,

CHARLES CLEMENT, *de l' Espee.*"

From his Holiness, Pope Pius, the IX, I received for distribution a splendid collection of engravings, medals of gold, silver &c—and from the Swedish Government most interesting and valuable collections of works relative to the History, antiquities, law, literature, fine arts, &c. &c. of this ancient Kingdom.

Thus far, I had secured the good will, the Legislative, Executive, and Official pledge of France and other European Governments, that they would continue faithful to the intercourse thus open between them and the U. States of America. But considering it indispensible to the full realization and permanency of a cause, to which I have devoted my whole existence, that I should pay another visit to the United States, either to invite the separate States to enter into this enlightened and fraternal arrangement, or to request of Congress and those of the States that had already sanctioned it, to give to the system that character of regularity and order indispensible to international relations, I tore myself once more, from the centre of my business, and from my domestic happiness, on the 4th of May. 1847, for this my second visit to your hospitable and beautiful country.

Bearing with me rich fruits of the intellectual labors of the best minds of the old world, so valuable to the new, and so substantial an evidence of the willingness of the Government and people of my own country to enter into an intellectual union with their brethren of

America, I entertained the most sanguine expectations of success from this second visit: and allow me to say, in advance, that those expectations have not been disappointed. The enlightened liberality of the statesmen and people of America, has recognised at once the great value of the plan, and has prompted a generous and hearty reciprocation.

On the 9th of February, 1848, I laid before Congress a second memorial, giving an account of the success of my labors during my absence; presenting the proofs of the favorable disposition of the Governments and leading minds of Europe towards the plan; assigning the reason why their own resolutions, passed eight yeas before, had not been carried into effect.

On the 4th of May, 1848, the Hon. Mr. Murphy, from the Joint Committee on the Library of Congress, brought in a report highly favorable to the petition of the memorial, and which closes with the following recommendation:

"In the views of the memorialist generally the Committee are happy to concur. After the success which has thus far crowned his unwearied and voluntary labors, they think his expectations of aid from us have been justly formed, and should be promptly satisfied. They therefore recommend that the Committee be authorized to establish such agencies, and organize such a plan of donation and exchange as they may deem best for this purpose; that all books sent to the Federal or State governments, to any departments, or libraries of either, to the academy at West Point, or to the National Institute, be admitted duty free; and that the sum of two thousand dollars be appropriated to enable the Committee to carry the measure into effect."

A bill in harmony with these recommendations was reported, and on the 26th of June became a law:

"AN ACT to regulate the exchange of certain documents and other publications of Congress.

"*Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled*, That the Joint Committee on the Library shall appoint such agent as they may, from time to time, deem requisite, to carry into effect the donation and exchange of such documents and other publications as have been or shall be placed at their disposal for the purpose.

SEC. II. *And be it further enacted*, That all books transmitted through such agents for the use of the Government of the United States or of any government of a State, or of its Legislature, or of any department of the Government of the United States, or of a State, or of the Academy at West Point, or of the National Institute, shall be admitted into the United States *duty free*.

"SEC. III. *And be it further enacted*, That the sum of two thousand dollars is hereby appropriated, out of any money in the treasury not otherwise appropriated, and the same is put at the disposal of the Library Committee, for the purpose of carrying into effect such donation and exchange, and paying the expenses already incurred in relation thereto.

"Approved, June 26, 1848."

In accordance with the first provision of this act, I was appointed the Agent of the United States for International Exchange by the following resolutions:

In addition to the law above given, which recognises the system, and provides for its support, Congress passed a number of joint resolutions, setting apart for purposes of exchange a large number of Important works: among others, one complete series of the standard weights and measures of the United States; 25 copies of Little and Brown's edition of the Laws of the United States; seven copies of the Exploring Expedition, &c. &c.

The large amount of correspondence necessary to the proper conduct of the system, renders the postage a tax of considerable weight. The Senate, in order to give every facility to its operations, passed the resolutions which follow, granting the privilege of free transmission to all letters and papers relating to Exchange. This resolution was lost in the House, in the last hours of the session, by a few votes. It is to be hoped that the importance of this measure, will be so apparent upon the farther operation of the system as to secure its adoption by a future Congress.

An arrangement has been made with the Secretary of the Senate and the Clerk of the House of Representatives, as well as with the various Departments of the Federal Government, by which a regular interchange of all official documents published by them shall be made, as fast as these documents are issued, for documents of the French Government. These documents will be transmitted by each Steamer, and thus each of the two governments will be put in immediate possession of all the public proceedings of the other; a measure which cannot fail to produce the happiest results upon the legislation of both.

Liberal as has thus been the spirit in which the Federal Congress has received and acted upon the proposals for the establishment of an intellectual union between the old and new worlds, the various departments of the Government were in no respect behind them.

The Department of State has contributed a collection of valuable books, among which may be mentioned a complete collection of Niles' Register, and an immense number of volumes of the local laws of the various States of the Union, &c. &c.

The Department of the Treasury has added largely to the material of exchange by contributions of books, documents, circulars, &c. &c. Among these may be more particularly noticed complete collections of the documents on the Commerce and Navigation of the United States, ma-

ny hundred circulars, collections of Tariff laws, and, in short, every thing relating to the business of the Department.

The Department of War, (under which is included the Military Academy of West Point,) has given more than 500 volumes of valuable military works.

The Department of the Navy has made presentations of the greatest importance and value. Besides a large collection of books, maps, charts and drawings, it has added models of vessels of every class, and of boats, specimens of arms, and a collection of all the varieties of wood employed in the construction of Government vessels.

The Department of the Post Office has presented collections of its reports and circulars, and numerous maps of the post roads of the United States.

The Patent Office has contributed more than 500 volumes of reports and other works, together with drawings and specifications of a large number of the most important inventions patented during the past year.

The Office of the Coast Survey has given six complete collections of the maps thus far made under its direction.

The Observatory has furnished numerous maps and charts, and works on meteorology, astronomy and navigation.

The National Institute has contributed a collection of scientific works.

The City of Washington has presented a very handsome collection of books, the gifts of the citizens of Washington to the city of Paris.

The amount of volumes, pamphlets, &c., thus received already from Washington city alone, amount to 15,000!

From the foregoing statement, purposely brief, it will be seen that the system of Exchange has been received with the most gratifying unanimity of approval and encouragement by every branch of the Federal Government. It has been testified not only by munificent gifts, but by legal provisions which secure, on a firm and liberal basis,

the future operations of Exchange. The States which have, and shall hereafter co-operate in its support, may transmit the objects which they wish to exchange to the Custom-House at New York, with the certainty that they will there be safely kept, subject to the order of the Agency; while, at the same time, the returns made from Europe will be received at the same depository, to await an order from their respective destinations. The Government has thus virtually constituted one of its own most important functionaries the agent for the safe-keeping and transmission of the material of Exchange. The effect of this measure upon the regularity and stability of the operations of the system are too obvious to need comment.

The United States Mint, at Philadelphia, has been directed, by the Secretary of the Treasury, to furnish a complete series of the coins of the United States, together with copies of all medals ordered by the Government. They are in return for a series of medals illustrative of the history of France, presented by the French Government to that establishment.

Having thus given a succinct account of all that has been done at the seat of Government for the support and encouragement of the system of Exchange, the next branch will be a consideration of the action taken by the State Legislatures upon the subject.

The State of Maine, for the purpose of supporting the system, first set apart, by law, for exchange, fifty copies of all the State documents, authorizing the Governor to transmit them to the accredited agents of the system, and place at his disposal a sum of not more than a thousand dollars, "for the collection and exchange of original specimens of natural history and productions of useful art."

Preferring that the system should be established upon a *permanent basis*, rather than have a brilliant beginning and a speedy death, I opposed so large an appropriation as the highest limit recommended by the committee, on the ground that it would afford a mark for the advocates of

retrenchment, and thus jeopard the future existence of the plan. The Legislature, in accordance with this suggestion, finally determined upon an annual appropriation of three hundred dollars, besides presenting me with duplicate copies of various works in the State Library. This was July 1847.

The State of VERMONT entered into the system with spirit, and set apart by law all duplicates in the State, not required by law to be preserved; and appropriation was made for the support of an agent of Exchanges. The wishes of the Legislature were fully carried out: a handsome collection of duplicates was placed in my hands, to be presented in the name of the State to European institutions. This was in November, 1847.

MASSACHUSETTS has made provision by law, authorizing the Secretary of the Commonwealth, under the direction of his Excellency, the Governor, to be authorized to exchange copies of the State Maps of Massachusetts, not exceeding twenty in number, and bound copies of the laws and legislative documents of the Commonwealth for the current political year, not exceeding fifty volumes of each, for books and other works of science and art from foreign countries, to be deposited in the Library of the General Court. And the Secretary is authorized to cause fifty copies of each of the said documents, for every future year, to be printed, over and above the number, to be bound in volumes and set aside for the purpose of effecting therefor said Exchanges hereafter. Appropriation was also made for the support of an agency. According to this resolve, 150 volumes of Legislative documents, 13 copies of the geological reports, 52 scientific reports, 20 maps, have been transmitted. This was in February, 1845.

RHODE ISLAND.—The letter of Prof. Jewett, which follows, gives a succinct statement of the action of this State:

"BROWN UNIVERSITY,
Providence, January, 29, 1846.

"DEAR SIR:—Your letter to the Governor has been received, presented to the Legislature, and referred to the committee on education; the chairman of the committee, M. Goddard, formerly a professor in our college, presented a report, with resolutions, thanking you for your generous exertions, and particularly for your handsome presents, and voting several extra copies of all reports and documents published by the State, and authorizing the Governor to pay all charges that may occur for the packing up and transportation of said books, and any others to be sent to us from Paris, through your agency. This was carried through the House and Senate unanimously, and it is, I believe, the only question which has been decided unanimously in our Legislature for a long time.

"You will probably receive the report and the votes by this steamer, or the next.

"The Rhode Islnad Historical Society have also passed votes of thanks and resolutions in favor of your project, which you will receive soon."

NEW YORK has made ample provision for the support of the system, and has entered into it most enthusiastically. At the Session of 1847–'48, this State provided by law, for the appointment of an agent with an appropriation of $400 for the support of the same. A great many most valuable works and objects have been the subjects of interchange between this State, and various departments and institutions in France.

NEW JERSEY.—The following shows what this State has done in reference to the system of Exchanges, in January, 1848:

"*Joint resolutions relative to* M. A. VATTEMARE'S *system of International Literary and Scientific Exchanges, and to provide for the support of an agency at Paris, in France.*

"1. *Be it resolved by the Senate and General Assembly of the State of New Jersey*, That the sum of three hundred dollars be, and the same is hereby, appropriated to defray the expense of an agency in the city of Paris, in France, for the purpose of receiving and transmitting such works as may be made the subject of International Exchanges.

"2. *And be it resolved*, That the Governor of this State be, and he is hereby, authorised to appoint some suitable person as agent for the State of New Jersey at the city of Paris, in France.

"3. *And be it Resolved*, That the said sum of three hundred dollars be transmitted by the Secretary of State, whenever officially informed that such agency has been duly established; and that the said agent be requested to report semi-annually, to the Governor of this State, of all his transactions and proceedings relative thereto."

PENNSYLVANIA.—My first application to the State of Peensylvania was made on the 10th of April, 1848. Although it was the last day of the session, I was received and heard with the utmost kindness, and the following handsome preamble and resolutions unanimously adopted:

"*Resolutions relative to International Exchanges, proposed by Alexander Vattemare.*

"WHEREAS, Monsieur Alexander Vattemare, a citizen of the Republic of France, having patriotically devoted his time, talents, and fortune, for a period of twenty years, to bring about and perfect a system of International Exchange of specimens of natural history and works of science and art between the nations of the world;

"AND WHEREAS, said Monsieur Alexander Vattemare having presented to the Commonwealth at various times, since the year 1843, a large number of rare and valua-

ble works, which have been deposited in the State Library;

"And whereas, said Monsieur Alexander Vattemare having, at the request of the Pennsylvania delegation in the House of Representatives in the Congress of the United States, visted the capitol of this Commonwealth, for the purpose of conferring with the Legislature and officers of the government in reference to the most expedient measures to be pursued in furtherance of his most praiseworthy and important enterprise;

And whereas, the present session of the Legislature being about to expire, it is impracticable for it at this time to take such part in the consideration of the question as it otherwise would take great interest and pleasure in doing; therefore,

"*Be it resolved by the Senate and House of Representatives in General Assembly met, and it is hereby resolved by authority of the same*, That the Governor and Secretary of this Commonwealth be, and they are hereby, authorized and requested to confer with said Monsieur Alexander Vattemare, during the recess of the Legislature, upon the subject referred to in the preamble to this resolution, and to adopt such measures as they may deem most expedient to carry out the object in view, and report thereon at the next Legislature."

Delaware.—The Governor of Delaware, in a letter dated January, 1848, expresses his intention to "lay the plan before the next Legislature, (in January, 1849,) with the expression of (his) cordial approval," and promises to the promotion of my views not only the influence of an official recommendation, but the weight of his personal sanction.

Maryland.—At the December session of the Legislature, in 1841, the State Librarian made a report, in which he recommended the adoption of the System of Exchange;

and on the 10th of March, 1842, the following resolution was adopted:

"*Resolution of the General Assembly of Maryland, passed March* 10, 1842.

"No 11. *Resolved by the General Assembly of Maryland*, That fifty copies of the Laws, Public Documents, and Journals of the Senate and House of Delegates, of the number annually printed for distribution among the several counties and Howard district of this State, shall be, and the several printers of the Legislature are hereby, authorized to deposite the same in the State Library for the purpose of exchange in foreign countries; that the Librarian be, and he is hereby, authorized and required to have the same bound, and to transmit the above extra copies of the Laws, Public Documents, Journals of the Senate and of the House of Delegates, together with such surplus books, now remaining in the Library, as the Joint Committee on the Library may direct, to the agents of foreign countries in the United States authorized to receive the same for the above purpose."

On the 9th of March, 1844, the following resolution was adopted:

"*Resolution, passed March* 9, 1844.

"No. 53. *Resolved by the General Assembly of Maryland*, That, for the purpose of carrying into effect the resolution of December session, 1841, No. 11, directing the Librarian to perform certain duties, that his Excellency, the Governor, be authorized to pay, out of any unappropriated money in the Treasury, such sums of money as may be necessary, under the said Resolution, to defray the expenses incurred in the exchange of surplus books, documents, &c., with the agents of foreign countries, as may, from time to time, be authorized by the Joint Committee on the Library."

Virginia.—In April, 1848, this State made provision by law, for the support of an agency for exchanges, with

an appropriation of $400 for that purpose. It was further provided, that the State Librarian be instructed to forward to the agent of International Exchanges such copies of the Code and of the Law Reports, of the Journals and other Legislative Documents, or other works, as may be spared without detriment to the Library. He shall forward such reports of the moral, social, and political statistics of Virginia, as may tend to diffuse amongst other nations a correct knowledge of her institutions, her condition, and her capacities; that he shall likewise forward any private donations intended for the department of International Exchanges; and that he be required to report annually to the Joint Committee of the Library.

INDIANA.—The following are among the very flattering resolutions of this State, passed in February, 1848, in relation to the system of Exchange:

"*Be it further resolved*, That Alexander Vattemare is hereby constituted the agent of this State in effecting International Exchanges with such governments, public institutions, and cities of Europe, as shall adopt his system; and for the necessary expenses to render such agency permanent and effectual, an annual sum, not exceeding four hundred dollars, is hereby appropriated to be paid out of the treasury on warrant of the auditor of State, who shall issue the same on the certificate of the Governor, that the amount certified has been properly expended.

"*Be it further resolved*, That there shall be annually printed and bound fifty extra copies of all laws, resolves, journals, and legislative documents, which shall be especially set apart for International Exchanges; and the Governor and State Librarian are hereby authorized to select such duplicate works in the State Library as can be spared, to be used for the same purpose.

MICHIGAN.—The following Resolutions passed the Legislature of this State in March, 1844.

"*Be it resolved by the Senate and House of Representatives of the State of Michigan*, That in grateful acknowledgments of his disinterested labors in the cause of humanity, and for the valuable works presented by him to the State, the thanks of the people of Michigan are respectfully tendered to Mons. Alexander Vattemare, by the Representatives of the people in Legislature convened.

"*Resolved*, That his Excellency, the Governor, be, and he hereby is, authorized and requested to receive the parcel of books transmitted by Mons. Vattemare, through Lewis Cass, jr., Esq, to the State of Michigan, and also the parcel consigned to E. Thayer & Co., forwarding merchants in the city of New York, and to place the same in the State Library.

"*Resolved*, That his Excellency be, and he hereby is, further authorized and requested to transmit to Mons. Vattemare a copy of the revised statutes and session laws of the State of Michigan, together with the journals and documents of both Houses of the Legislature, and such maps of the several counties as are now completed.

"*Resolved*, That the State geologist be, and he hereby is, authorized and requested to examine and report to the next Legislature what duplicate specimens of the natural history of Michigan are in his department of the University.

South Carolina. On the 18th of December last, the Legislature of South Carolina passed an Act adopting the system of exchange, and appropriating $300 for the support of the agency. The following is a letter from Gov. Seabrook, appointing me agent of the same:

Executive Department,
Charleston, December, 23, 1848.

Ma Dear Sir:—

I have the honor, herewith, to transmit your commission as agent for the State of South Carolina in effecting the system of International Exchanges. The intellectual and political revolutions which you are silently

but surely accomplishing, among the nations of the world, is one of the most stupendous and startling, of which the mind is capable of forming an accurate conception. In successfully persuading the crowned heads of the old world, to extend the right hand of fellowship to Republican America, in the mode prescribed by you, requires all the energy of a highly-gifted intellect, incited by boundless enthusiasm, and sustained by the wisdom and goodness of God. The interests and the happiness of mankind are so deeply involved in the matter of your mission, that the result cannot be doubted. Go on, then, until your triumphant banner shall be seen in every quarter of the Globe.

Fraternally,

Yours, &c.

WHITEMARSH B. SEABROOK.

A. VATTEMARE, Esq.

By means of the agency of commerce, all productions which can administer to the support, comfort, or enjoyment of human life, which exist in superabundance in one quarter, are transported to another, so that every nation enjoys all that can be found in every other. We are indebted for the luxuries of the table, the elegancies of dress, and the splendor of the drawing room, to every quarter of the Globe. The system of exchanges proposes to go one step farther. It has for its comprehensive design to place at the disposal of every nation all the sources of intellectual culture and of refinement of taste which are possessed by the most favored of its fellows. The main object of this system is to open a channel of communication between the PEOPLE of the various nations of the world, which shall bring them together upon the neutral ground of letters, and by making them better acquainted with each others' laws, manners and customs and intellectual wealth, by acts of mutual kindness and courtesy, to cultivate the spirit of peace and of reciprocal respect and good feeling.

Extensive business arrangements are necessary to carry out the plan. It was proposed to establish in the United States a central depot, to which all objects of exchange can be transmitted to be shipped to foreign countries, and where all returns from abroad may be received and sent to their respective destinations in America. It will be seen, by reference to the two Treasury circulars before quoted, that this depot is, by the official act of the Treasury Department, established at the New York Custom House.

In connection with this depot will be a similar one in Paris, through which all exchanges are to pass. The depot in Paris will also be the seat of the GENERAL AGENCY, which will have the management of all the business of exchange, where all the responsibility for its faithful conduct will rest, and to which all subordinates will be accountable.

The GENERAL AGENCY will employ subordinate agents in the capitals of all the nations and States which unite in the support of the system, who will be paid by it and report to it: these agents will be charged with the receipt and transmission of all objects of exchange, and all the transactions of the general agency with their State or Nation, will be conducted through them.

Such is, in brief, an outline of the *machinery* which it is in contemplation to employ. The necessity for it will be apparent from a few obvious considerations which I have already urged in a communication which I had the honor to submit to the Joint Committee on the Library of Congress during the past Session, from which I beg leave to make the following extract:

"In the conduct of a system involving such a number of multifarious operations, *unity of action* is the first of all the conditions of success. A single establishment, ramifying itself by means of its agents wherever its operations demand its presence, must be made the responsible head, from which all the transactions of Exchange throughout the world are to be controlled and directed, and where all accountability is to rest. Division of this

responsibility would lessen its force, and would take away the necessary guaranty for the faithful execution of the trusts imposed.

"With this view, and in accordance with the united opinions of the ablest men and the first scientific bodies of both continents, Paris has been selected as the seat of a CENTRAL AGENCY, having collateral branches in the capitals of the several States who unite in the support of the system. It will form the great heart—and receiving from all quarters, and transmitting to all, the intellectual life-blood of the nations—their literature, science, and arts All the agents of the system will be responsible to the Central Agency, and it, in its turn, will be responsible to the nations which make it the channel of their exchanges.

"For the support of this Agency, an estimate was submitted to you several months ago, which I beg leave to recapitulate here:

"For one chief clerk,	$1,000
" one assistant,	450
" two messengers,	400
" agents, resident at capitals of States,	3,000
" publication of quarterly report,	2,000
" rent, &c., of office,	400
" travelling expenses,	1,500
" incidental expenses,	1,500
Total,	$10,250

"The report referred to in the above estimate, is one of the most important features of the plan, as it offers the most certain guaranty for the faithful expenditure of the funds appropriated for the support of the system, as well as for the proper distribution of the books, and other articles of exchange, entrusted to its care. It will exhibit, in the minutest detail, not only the pecuniary accounts of the Agency, but the disposition made of every article that passes though its hands, so that every institution and every individual who shall have contributed even

the smallest pamphlet for purposes of exchange, will be able to ascertain at once whether it has been faithfully transmitted to its destination. The system of accountability will thus be rigid and complete. The report, while thus operating as a salutary check upon agents disposed to be unfaithful, will serve the further, and not less useful, purpose of furnishing to the institutions of the various countries connected with the plan, the means of ascertaining what each might obtain from the other, and where the objects desired could be procured. The operations of the system have not unaptly been compared to the circulation of the blood: this particular feature of it will correspond to the function of *nutrition*, which enables each part to appropriate whatever is best adapted for its own nourishment and growth.

"Of the sum required for the support of the Agency, $3,600 have already been secured by the legislative appropriations of various States, viz:

"By the State of	Maine,	$300
" "	Massachusetts,	300
" "	Vermont,	200
" "	New York,	400
" "	New Jersey,	300
" "	Indianna,	400
" "	Virginia,	400
" "	South Carolina,	300
		$2,600

Add to this, the sum appropriated by the Federal Government, ($2,000,) and we have a balance of but $5,650 to be secured from the twenty-three other States which have not yet acted on the subject. The interest everywhere manifested throughout the Union in the success of the system, warrants me in the expectation that, not only the fourteen other States which have already opened communications with me on the subject, in terms favorable in the highest degree to the design, but every

State in the Union will cheerfully contribute towards the Central Agency at Paris."

It will be seen from the statements in the above extract that the sums asked of the various States are exceedingly small, yet they will be still farther diminished when the system has once been put in full operation, and all its transactions reduced to perfect regularity. Trifling as these sums individually are, the aggregate of them forms the working capital of the system, and hence the indispensable necessity of their being made *permanent*. The sole object of asking them at all is to secure the permanence of the relations which the system of exchange has already been so successful in establishing between the civilized nations of the world; relations, the importance of which cannot be diminished by time. I have therefore most respectfully, but most earnestly, to request that some measure may be adopted by your legislature, calculated to place the annual appropriation beyond the reach of those causes which might operate temporarily to interrupt it. Thus the Central Agency would be enabled to found its expenses upon a perfectly safe basis.

In France, an old country, with a dense population, where the business relations of men are marked by a permanence and solidity which the circumstances and wants of a new country forbid, it would be impossible for me to secure the services of such men as the duties of the agency will require, unless I had it in my power to offer them the surest guaranties of the certainty and permanence of the means upon which I rely for their remuneration. I trust the importance of these considerations will lead to such action on the part of the various States, whose Agent I have the honor to have been appointed, as will relieve my mind from any anxiety on the subject.

A brief notice of the advantages which may reasonably be expected, from the full realization of the system of Exchange will close this address, which, I fear, has al-

ready extended beyond the limits which I ought to have set to my demands upon your patience.

To America, it is believed, that the increased knowledge and appreciation of her intellectual wealth and resources, which must result from the wide dissemination of her products of mind throughout the civilized world, would be more than a full remuneration for a hundred times the expenditure which is necessary to secure it; if, indeed, any pecuniary estimate is not wholly out of place in calculating the value of such appreciation. It is a lamentable fact that the United States does not occupy that high place, in European estimation, to which her social and national position entitle her. She is either seen through the distorted medium of a foreign press, or judged from the narrations of ignorant, prejudiced, or mercenary travellers, who visit her shores merely to discover such faults and foibles as will enable them to make a saleable book. Had the people of Europe an opportunity of learning your wise and salutary laws; the peaceful, yet powerful working of your free Government; your admirable institutions for the punishment of vice, and the relief of honest poverty; the freedom of your religious views, and the universal means of education which you possess; your public works and public press, rivalling each other in public benefit; your immense natural resources, and the enterprising industry of your citizens; could this knowledge but be diffused, Europe would at once be forced to respect and admire you for other than military or commercial triumphs, and feel proud that your continent was peopled by her sons.

One great step towards the spread of the knowledge of America and her institutions in Europe has already been made by the system of Exchange, in the formation of AN AMERICAN LIBRARY, in the city of Paris. This library is already in existence, and contains a highly valuable collection of American books, constantly increased by the large transmissions which American liberality is constantly enabling me to make to it of the richest productions of

the national mind. In the hall of this Library, each State of the American Union has an alcove expressly appropriated for the reception af its contributions, each severally distinguished by its name, arms, and the date of its incorporation, so that the thousands of Frenchmen, and foreigners of every nation, who visit the Hotel de Ville weekly, must, per force, become better acquainted with the history and genius of your glorious country. I appeal to American patriotism to aid me in making this library a worthy monument to the intellect and liberality of the Nation.

The operations of the General Agency, when once it is fully established, may gradually, and with great advantage, be extended so as to embrace objects collateral to its main design. Statistical information of every kind may seek that channel for dissemination, and as an object directly in line of its chief purpose—to promote international good will—a bureau might eventually be engrafted upon it which should be charged with the interests of emigrants, furnishing them with every species of information in relation to the region to which they propose to remove, the price of land and labor, its sanitary condition, the expenses of transportation to it, the articles most necessary for their comfort, &c., &c. Artisans might be directed to the point where their labors would be most likely to meet with reward, and the honest and deserving be furnished with certificates which should secure for them a welcome and good treatment upon their arrival. I merely hint at these things to show that the system contains within itself elements of usefulness which are yet undeveloped.

It was with the intention of giving popularity to natural studies and researches in the new world, as well as the formation of collections of local natural productions in each State, that I published last year, with an account of the movement of the international exchanges between France and North America, from 1845 to 1846, "*Instructions for collecting, preparing and forwarding objects of*

natural history: written by the professors, administrators of the museum of natural history at Paris," with the hope that the Legislatures of each State of the Union, would appreciate the importance of having the same re-published and widely circulated.

Every State in the American Confederacy, I believe, has, at its capital, a collection of books known as the State Library. In most of them, however, the works are chiefly of a legal and political character, intended almost exclusively for the use of the legislators during the session of their body. In the intervals between the sessions, the Library is only occasionally open, and, even if open all the time, would be of little benefit to the mass of the public, who either feel no interest in, or are not prepared to understand the subjects to which the works are mainly devoted. Science, general literature, and the fine arts, have no place among them; and literary men, and the reading part of the public, do not make these libraries places of resort for literary relaxation, or for severer study. There are doubtless exceptions, but such is the general character of these institutions.

Now, this might very readily, and with the most desirable results, be changed. The resources of exchange, liberally employed, added to a very moderate annual appropriation, judiciously applied, would build up in your State capitals libraries which would be just sources of pride, and afford, moreover, invaluable means of reference to sholars, and of cultivation and improvement to the whole people. There could be no spirit of exclusiveness in such institutions; each man would feel that he was enjoying the advantages which he had himself aided to procure, and that he and his children might freely avail of them, without fear or favor. This would be a true intellectual democracy—the best books, selected to suit the wants of all classes and professions, *freely thrown open to the use of all.* With reference to Exchanges, such a library would be the most proper channel through which the business should be conducted—the appropri-

ate seat of the State Exchange Agency. It would open an account with the institutions of the State desirous of partaking of the advantages of the system, and with the national central depot, and thus be put in relation with the whole scientific and literary world.

Allow me, Mr. Chairman, and gentlemen, to say in conclusion, that I have received, and now have in my possession, many and most flattering testimonials, not only of public institutions and high functionaries in the old world, but also from Public Bodies and distinguished men both of the Federal and State Governments in this country. The flattering and complimentary manner in which they speak of my humble exertions, I attribute to their high admiration of those beneficent results, which it is my lot to be, in some measure, the agent of bringing about. If I am equally fortunate in impressing the Legislators and public-spirited citizens of North Carolina with the importance of this great scheme, I shall ever cherish with pride and pleasure, the reminiscences of my visit among you.

[D.]

INSTRUCTIONS

On the best mode of collecting, preserving and transporting objects of Natural History, prepared by the Professors, Administrators of the Museum of Natural History at Paris.

In the following pages we shall speak of the actual state of our collections and of our knowledge of Natural History; but as this memoir, though specially designed for our own museum and countrymen, may be consulted by foreign naturalists, for the sake of aiding our collections as well as their own, we would invite the attention of collectors to any part of our instructions, which may seem defective or capable of improvement; and we would invite all travellers to make known to us the results of their experience, that we, and the whole learned world, may profit by them.

It is not simply a series of instructions, which we here give; it is an appeal to all, who interest themselves in the cause of science and of their country. We wish to point out to them the means of enriching this great national establishment, which, open to public curiosity and

study, can be rendered perfect only by the aid of many hands. The institution cannot itself support travellers, except upon a few limited points, and even there, such is the inexhaustible fecundity of nature that very *much* still remains to be done.

As for amateurs, who have not hitherto occupied themselves with Natural History, and who can give but little time to it, but who, notwithstanding, desire to render their sojourn in parts little explored, serviceable to our object, we would advise them to attempt so much the collection of a great number of objects, as the selection of such as are rare or remarkable or little known, and particularly such as are indicated in our list of *desiderata*. They could thus economise time, and employ it more usefully, not only in collecting the objects which we recommend, but, also, in bestowing upon them that care which would ensure their preservation.

The Instructions, which we are about to give, are divided naturally into three sections, corresponding with the three kingdoms of nature; and each part has been prepared by such of the professors as it especially concerns. These instructions make known,

1st. The manner of collecting and preparing objects of Natural History.

2d, The choice and form of the notes which should accompany them.

3d, An indication of those which are more particularly wished for.

Before proceeding to the special details of this memoir, we will give a few general instructions upon the packing of objects of natural history, and upon the modes proper to be employed to prevent any damage during their transportation by sea.

When the specimens have been prepared and placed in cases, as hereafter directed, these cases must be closed in the best possible manner, and covered on the outside with pitch or tar, so that neither air nor moisture can penetrate. After this they must be completely enveloped

in oil cloth. And when on ship-board, they must be placed as much as possible out of the reach of the heat and vermin, and where they will be least likely to be disturbed during the voyage.

Glass bottles should be packed in wooden boxes, well filled with tow, or sea-weed,* and so arranged as to secure them from breaking. Objects, which may be spoiled, or injured, by the liquids contained in the bottles, should they happen to break, should not be placed with them in the same box.

Whenever packages are forwarded, information should be immediately given, with a statement of the number and weight of the boxes—the name of the ship in which they are sent—the time of sailing, and the port to which it is bound. These statements should be forwarded in season, so that the boxes may be sealed at the custom house and not be opened till they arrive at Paris. If living animals, or vegetables, are to be sent, the time necessary for the voyage should be calculated, and the quickest and safest conveyance chosen.

Section I.—Mineralogy and Geology.

Minerals are found either in regular geometrical forms, called crystals, or in masses, more or less irregular. Among crystals, some are so situated that they can be separated, without injury, from the matter that envelopes them. Others compose salient groups; while there are others embedded in rock. Specimens of each of these states should, if possible, be procured. Where crystals are enveloped in other matter, portions of this matter (varying from two to three inches in dimensions) should be detached with them, so that the different minerals, which accompany them, may be observed.

In procuring specimens of masses composed of needles and fibres, or such as are granulous, or compact, care should be taken that they be fresh and free from those

*Refuse cotton, or saw-dust well dried, are good substitutes for these.

alterations, which take place at and near the surface, in consequence of exposure to air, water and change of temperature. The metallic mines are objects, which have an especial claim upon the attention of travellers. It should be carefully noted whether they lie in beds parallel with the rocks with which they are associated, or in clefts, called veins, which cross the direction of the rocks. In procuring specimens from these mines, care should be taken to obtain, in connexion with the principal metal, portions of other metals or minerals which may be associated with it and also of the adjacent rock.

For the progress of historic and technical mineralogy, it is desirable that specimens should be furnished of such stone as is most commonly used in the construction of monuments and buildings; and, also, fair samples of all mineral substances employed in the useful or ornamental arts, such as sharpening stones, stones for ovens, stones for polishing and stones for potteries. Where there are different kinds of pottery, care should be taken to indicate the different kinds of earth and stones which enter into each. And, whether minerals are indigenous or exotic, the place from which they come should be particularly mentioned.

Whenever organic remains, such as bones of animals, shells, or impressions of fishes or vegetables, are found, specimens should be carefully taken, leaving around them portions of the earth or stone in which they are imbedded. And where the earths exhibit traces of volcanic origin, specimens should be taken of all the varieties of ejected matter, such as stones, basalt, glass, obsidians, scories, etc.; and whenever prisms are found, their form and extent should be carefully observed and noted. To each specimen obtained should be attached a ticket, indicating the name of the country and place where it was found, its distance and direction from some place which is well known, the general appearance and nature of the country in the neighborhood, of the locality and its elevation above the level of the sea.

Whenever mineral waters shall be found, care should be taken to fill a bottle with them, and to cork and cement it closely.

Since those systems which restrained the observation of facts and the comparison of those observations, have been abandoned; and since studying the actual state of things has been substituted in the place of guessing of their nature and origin, geology has advanced like other correct sciences; and this advancement has not only extended our knowledge of the formation of the globe, but has, also, produced results extensively useful to the arts.

We are at present far from knowing other portions of the earth as well as we know Europe; yet it would be easy for those, who visit distant countries, particularly the tropical regions, to aid in extending our knowledge, by furnishing us with specimens of their multitudinous productions. By the examination and study of the geological specimens thus furnished, and their accompanying notes, valuable information would be obtained respecting the nature of the soil of those countries, and of the nature and general arrangement of the rocks.

On all coasts and islands where vessels stop, travellers might land and easily procure objects, which, though of little value in themselves, would become interesting and instructive by the simple annotations, which accompany them. They might pick up pebbles on the borders of torrents, which would indicate the nature of the rock from which they proceed. Of these, they should note the various sizes, and, in taking specimens, care should be had to select those differing in appearance, so as to illustrate all the different kinds.

Whenever a rock is seen rising from the water or on the land, it should be examined and ascertained whether it be homogeneous, that is, all of the same substance, or is composed of different strata or beds. In the first case a specimen, or specimens, may be taken from any portion of the rock which has not been affected by expo-

sure to the weather. But if the rock be stratified, or in beds, their order, direction, inclination and thickness should be observed, and samples should be taken of each bed, and each sample so marked as to indicate its position in relation to the other beds; all from the same rock or mountain should also have a common mark indicative of the locality. If a simple sketch, showing the form of the rock or mountain, could also be taken, it would be of essential service. In case the rock be an isolated one, it would be useful to take a sketch of it from directions, in order to be more certain of the position and inclination of the strata.

It would be well to gather some sand from the bottoms of rivers; above all, those which wash metalic dusts, and this sand should be taken as far from the mouth of the river as possible.

In some countries are found isolated masses to which the people attribute a singular origin. Pieces of these should be taken. Perhaps they are aerolites, or masses which have been transported by the revolutions upon the surface of the earth.

In gathering specimens of rocks, ores, volcanic products and organized fossil bodies, it is essential to mark well their locality, that is, the nature of the earth where they are found, and their position relative to the substances, which are around them. Beds of basalt merit particular attention, both on account of themselves, and of the substances with which they are connected. It should be noted whether they are divided into irregular masses, or beds, or prisms, and what is their arrangement. It should be remarked, if they contain the remains of organized bodies; and specimens of all the varieties should be taken, and also of the substances with which the basalt is connected. It must, above all, be ascertained whether there be any intervention of scorified matter, or beds of an earthy appearance, to which the Germans give the name of *wacke*, and which are proved to be of volcanic origin. The same attention should

be given to the rocks named trachytes by M. Hauy. These are distinguished by primitive, intermediate or secondary porphyries, by the absence of quartz, and by the presence of pyroxene, and titaniferous iron.

Whatever be the nature or age of the soil of a country, it is of the highest importance that samples of the most common rocks, those from which the bulk of the soil is constituted, should be collected. The examination of subordinate beds and accidental deposites, is of secondary importance. The general appearance and constitution of a locality must be well considered in order to select the most proper specimens to represent it; and in order that his representation by specimens should be better understood, the traveller should make it a rule never to quit a declivity, or mountain, or country, without having made, if possible, a geological section of it. Indeed, geological sections should always constitute a principal part of the labors of a geological traveller.

The specimens, or samples collected should not be too large. Those measuring three inches by two, and from one to two inches thick, are sufficient. Larger specimens should not be taken, unless they contain crystals, organic fossils, or some other interesting objects, which would be injured by reducing them to that size. In packing these specimens for transportation, they should first be wrapped with fine paper; above this paper should be placed a ticket, or note, indicating and describing the locality; over this should be placed a second paper, and then, after being surrounded with tow, or cotton, the whole should be enveloped in thick gray paper. These specimens should then be packed in boxes, being placed upon their edges and arranged in successive beds, so close, and with the interstices so well filled with cut paper, or tow, that nothing can derange them. No space should be left between the last bed and the cover; and the box should be tarred to prevent humidity.

As the value of geological collections depends principally upon the knowledge of the local circumstances in

which the specimens were taken, it is indispensable that the collections forwarded should be accompanied by well arranged catalogues. These should contain the numbers, and whatever is written on the labels of the several specimens, in their order, and against each should be inserted all the details, descriptions and drawings necessary to an accurate knowledge of the locality. It would be well to have duplicates of the catalogues. One of them, pressed between two pieces of board, should be placed on the top of one of the boxes; the other should be addressed directly to M. Vattemare.

Section II.—Botany.

The Botanic riches of the museum are composed—

1st. Of living vegetables cultivated in the garden.

2ndly. Of the collection of dry plants, or herbals of the different part of plants, dried, and in alcohol, such as woods, fruits, &c.—embracing all the products of the vegetable kingdom that are capable of preservation.

3dly. Of the collection of fossil plants.

1.—*Living Plants and Seeds.*

To promote the progress of science, agriculture and horticulture, it is important to collect in a central garden, like that of Paris, the greatest possible number of species of living plants, and to attain this end, either the living plants or their seeds must be procured. Both of these methods are attended with difficulties, according to the nature of the plants and the length of the voyage they have to endure. In the instructions, which follow, we shall speak only of parcels to be sent from beyond the limits of Europe, and which must endure a voyage of from one to four or five months, because packages which are not on the way more than fifteen or twenty days, require only to be put up in the ways employed at the various nurseries in Europe.

In the transportation of *living plants*, distinctions should be made of the ligneous plants, young trees, shrubs,

and certain herbaceous plants, from those which are pulpy plants, tubercles or roots. Roots, underground bulbs and tubercles, such as those of the lily tribe, irideæ, dioscarea, land archides, aroideæ, gesneria, many of the oxalis, trospoculum, &c., are easily transported by packing them in dry moss, or very dry sand, with which the box containing them should be filled up. The parasitic orchides or epyphytes, with green bulbs, can be sent in wooden boxes, pierced with holes and kept dry. As the old leaves by their decay would cause dampness, they should be taken off and the roots wrapped in dry moss or cloth. The same means may be used for the pulpy plants, such as the cactus. For packing these, any dry flexible substance, not subject to dampness, as hair, wool, &c., may be used. These pulpy plants, if large, should be separated from the others, which might be injured by their decay; and they should be packed with great care, because their tissue, more watery than that of the tubercles and roots, may be crushed under their weight, which is often considerable.

For the transportation of those living plants which are neither pulpy nor tuberculous, it is necessary to place them in glazed boxes, of peculiar construction, invented and first used in England by M. N. Ward. These boxes may vary in size and form, but that they may not take up too much room on the decks of ships, where they should always remain during the voyage, they should not exceed the following dimensions: 3 to 4 feet long—20 inches wide—2 to 13 feet high.

The bottom should not touch the deck, but be raised a few inches by feet on the four corners, so that the sea water may not wet the box. The two ends of the oblong chest are cut in the upper part in pointed shape, to receive two glazed frames, which extend from one end to the other and meet at the top like a roof. The sides, ends and bottom should be made of oak or other hard wood which is well seasoned and half an inch thick, and they should be joined by grooves, so as to be perfectly tight.

The glazed frames are to be divided by cross pieces, from one inch to an inch and a half in width, extending from the upper to the lower edge, and two or three inches apart. These cross pieces must be grooved to receive the glasses, which should be thick and overlap each other like the shingles of a roof, and should be well cemented. These frames are then to be placed upon the two sides, meeting closely at the top, and fastened with screws, well oiled, to prevent rust. The boxes must be well puttied and painted. To the ends of the box should be fixed strong iron handles, and the glass should be protected by a grate of iron wire propped by iron rods at a little height above it.

For the reception of the plants, or roots, a bed of clayey earth an inch or one and a half inch thick, and moist enough to stick to the bottom, must be first put in the box; then a layer of earth, consisting in part of vegetable mould, from four to six inches deep. The plants or roots are to be imbedded in this earth either in pots or in wicker baskets. To prevent accidents on a long voyage, and especially from the port to Paris, straw and rushes may be used, with wooden cross pieces nailed to the partitions of the box. A box of the size we have described, may contain from fifteen to twenty-five or thirty plants, according to their size.

Seeds, especially of the kinds that preserve with difficulty their germinating power, may be sown among these plants, such as those of the palms, laurels, oaks, several of the conifers, roses, &c.

The plants should be well rooted in the boxes before they are shipped, and not transplanted directly from the country; but in case they are thus transplanted, the box should remain open till they have taken root. Before the box is closed the earth should be well watered, but not too much. It should then be sealed hermetically, and not opened during the voyage. It should be kept on the open deck, and should any of the glass be accidentally broken, it should be immediately replaced; and should

there be holes in the wood they should be closed with putty.

The box should never be put below, except it contain tropical plants and the cold is extreme. From light frosts a cloth thrown over the box is a sufficient protection. They should have all the sun possible.

The best time for sending plants to France is between April and October.

Seeds as well as plants should be sent. Many seeds will keep for a year and more, if gathered ripe and dry. Seeds are ripe when they fall off, or when the fruit, which encloses them, opens. But seeds, apparently dry, often contain a sufficient quantity of water to cause them to mould, if put up in that state. They should be dried by the sun in the open air, for several days before packing, especially berries and the pulpy fruits. These last may be pressed and dried in the sun or in brown paper, as plants are prepared for herbals. After seeds are perfectly dried, the best way of keeping them during a long voyage is to wrap them in thick paper, put them in a thick bag, and hang them in a dry, airy place.

There are some seeds, those especially which contain oily matter, which should be allowed to germinate on the voyage. Cocorus, chestnuts and beechnuts are of this description; and, among exotics, the seeds of the laurel, many of the palms, several conifers, arancarias, tea and coffee seeds, goyaviers, and other myrtinees. The best way to send these seeds, is to sow them in the glazed cases already described, either among other plants, or in special boxes of smaller size. In case there are no glazed boxes, common boxes or barrels filled with good earth will do. The earth should be light and a little damp; or, instead of earth, the dust of decayed wood may be used.

In planting the seeds, about two inches of earth must be placed at the bottom of the box, and in this the first bed of seeds must be sown, with spaces between them equal to the size of the seed. There must be placed upon

this another layer of earth one inch thick, in which must be sown another bed of seeds, and so on up to twelve or sixteen inches in height, care being taken so to fill the box that the seeds may not be injured. Care should also be taken to keep the box dry, and especially out of the reach of salt water, which always kills plants and seeds.

All plants should be labeled, and the numbers on the labels should correspond with the numbers in a catalogue, which should declare for each plant.

1. The country from which it comes.

2. The locality and soil where it grows, such as woods, rocks, meadows, marshes, &c.

3. The height of the place, if it comes from a mountainous country, so as to distinguish the plants of the tropics and the temperate and frigid zones.

4. The common name of the plant, either among the Europeans established in the country, or the natives.

5. Its uses, its characteristics, and the color of its flower.

This information should be given in the catalogue of the seeds sown in the glazed cases, as well as in that of the living plants. In the case of seeds preserved dry in bags, these notes may be written upon the bags.

We cannot particularize all the plants we desire, because our wants vary every year by new acquisitions and by losses; but the administration will endeavor to give lists of them to persons in distant countries, who are willing to aid in supplying our deficiencies. We will here specify a few families and kinds, the absence of which from our collection of living plants, we particularly regret.

1. Those which grow alike in the tropical regions of the old and new continent; as the rhizophores, (mangliers and paletuviers) chailletiees, connaracies, burmaniacees, xyridee, eriocolons, podostemees, the loranthus parasites, lardizabalees, and pistias. And among the ferns, gleichenias trochomanes, hymenophyllum, schizea, danaea, angiopteris, salvinia and azolla.

2. Those which grow in Asia, as dipterocarpieæ, aquilarineæ (aloes or eagle-wood,) apostasieæ, guertnera (guemon of Molocca,) and the nipa, which is a kind of palm.

Vegetables dried or preserved in alcohol.

These collections should embrace the following objects:—

1. Herbals, or plants dried between leaves of paper.
2. Fruits and preserved seeds, either dry or in alcohol.
3. Pulpy flowers also preserved in liquor.
4. Portions of roots, trunks and samples of wood.
5. Different products of the vegetable kingdom, such as flax, starch, gums, resins, dye-stuffs, and all substances employed in medicine or the arts.
6. Specimens illustrative of vegetable anatomy and physiology.

The labor and care necessary to enrich collections in botany is generally much less than is required in zoology.

Herbals, embracing flowers and fruits.

Specimens of buds, flowers and fruits of plants, intended for herbals, should be collected when the plant is small, and, generally, when it is of a size to be kept in a sheet of paper by folding, and the root should be taken with it. When it is too long for the sheet, and cannot be bent, it should be cut in pieces of 16 or 18 inches in length. Of the great herbaceous plants, whose leaves vary at different heights on the trunk, the base of the stalk with the leaves it supports should be preserved, and also branches with flowers and leaves.

In arranging the plants for drying, one specimen (or many if it can be done without their touching each other) must be spread within the fold of each sheet of paper, and these sheets may then be placed one upon another, till the packet has a thickness of 8 or 10 inches. It should then be pressed between two pieces of pasteboard

by means of cords or straps passing around them and fastened by buckles. The pressure should be moderate, enough to prevent the plants from wrinkling, but not enough to change their shapes, or crush their tissues by flattening them too much. The parcels, to dry well, should be placed on a dry board; or, which is better, hung up so that the boards shall be in a vertical position. It is well to change, several times, the papers in which the plants are placed; first, soon after the drying has commenced.

The drying of plants may be much quickened by dividing them into packages of eight or ten plants in each, with very little paper between them, and then pressing them between two frames furnished with wire grates, and tied up by strings. A layer of four or five thicknesses of paper should be placed on each side next the grate, to render the pressure more uniform, and keep the plants from crisping. If these small packages are exposed to the sun, or a current of air, the plants dry rapidly, often before the paper containing them is changed; but unless there be a great number of these frames, it is impossible thus to dry a large number of plants; but this process would be especially useful for persons to whom the formation of an herbal is only an accessary occupation.

Botanists who wish to dry many plants without using much paper, should place packages of 15 or 20 plants, arranged as above described, in a stove, with a current of air, heated up to about 122 degrees of Fahrenheit's thermometer by a lamp placed below, and separated from the plants by a cross partition of punctured plate. Specimens require only from 12 to 24 hours to be dried perfectly in this way. This process, first successfully employed in Paris by M. Doyere, is most useful in warm and damp climates, and for plants difficult to dry. It is easily employed in scientific voyages.

Frames of bamboo, which is found every where in tropical climates, replace excellently frames and bars of iron.

There is another speedy process, which requires much less paper, but preserves less perfectly the dried specimens: it only needs a dry and spacious room. The plants or flowers are placed in simple sheets of paper and pressed; the sheets are then spread out, for the night, on the floor, and, when dry, pressed again. This process is not so good as the former, and should be employed only when there is a lack of paper.

This is the whole art of making herbals; and every intelligent traveller will know how to suit his process to circumstances.

In damp times and regions, it is well to quicken the process of drying. Paper perfectly dry should only be used, and changed often. The paper should be dried in a warm oven, where bread has just been baked.

Watery plants, such as bulbs, orchides, etc., continue green in herbals several months after they are placed in them. It is well to plunge them in boiling water for a minute, or, still better, to put them in alcohol for a couple of hours; then they should be taken out and placed between leaves of brown paper, where they dry easily, because the action of boiling water or alcohol has destroyed the life of the plant.

There are plants whose leaves or flowers easily break after drying; in such case all the parts should be sent separately.

There are also families of plants that require peculiar processes of preservation. Palms, on account of their size, cannot be preserved in common herbals. Yet, it is important to complete the history of this remarkable family. For this, must be observed: 1. The dried leaves in paper, spread out, when they are not too large; but when large, folded like a fan, dried in the air, and wrapped in brown paper well tied. 2. Clusters of flowers or corymbs with the common envelope, taking care to preserve equally the male and female flowers, when they are separate. These should be dried quickly in the open air and wrapped in paper or cloth, taking care to collect the

flowers that fall off. When these clusters are not large, it would be well to preserve them in weak alcohol, and, in all cases, it should be used for branches, to be put in the same jar with ripe fruits of the same plant. 3. Clusters of ripe fruits, some dried in the air and others preserved in alcohol.*

Those great marine plants, commonly known by the name of sea-weed, should be dried by hanging them in the shade, in the open air, without pressing them in paper. They should, afterwards, be put in paper bags, with a label of the place where they were collected and their color when fresh.

They can be better prepared in Paris than in traveling, as they often require much care, unless the traveller is skilled in the art. Samples preserved in alcohol would be useful for anatomical researches.

Before drying the smaller kinds in the same manner in the open air, all the sea water should be pressed out, by squeezing them gently, and absorbing it with brown paper.

The most of the other criptogamous plants, such as the ferns, mosses, lichens, mushrooms large and small, are prepared in herbals as other vegetables.

The only proper way to preserve the pulpy mushrooms is in alcohol, or wrapping them in flax or cotton; but a note or sketch should be made of their colors, for only their form and structure are thus preserved. Young specimens of these plants are preferable.

However the collections of which we have spoken are made, a label should be attached to each of the specimens, indicating:

1. The place where the plant was found, and if the

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* The *proof spirit* or new rum of the best apothecary shops, the density of which is about 0.917 to 0.925, is highly suitable for the preservation of any of the objects of natural history which we may desire to preserve. New rum, of common strength, would not be so injurious to a delicate, colored object, as alcohol.—A. Young, Jr.

place is little known, its position in relation to one that is known.

2. The time of gathering the specimens, whether in flower or fruit.

3. The name the plant bears, taking care to have it repeated several times; and its meaning should be added, whenever it is known.

4. The uses of the plant in domestic economy, in the arts, or in medicine.

5. The color of the different parts, and particularly that of the flower, its odor, the consistence of the fruit, and the manner it opens, when ripe; in fine, all the phenomena relative to the plant.

6. The size, form and consistence of the plant. If it be a tree of some size, and if the traveller can sketch, it would be well to give a drawing of its form, especially for palms and other monocotyledons. Common trees, if there is no sketch made of them, may be compared to some of the best known trees in Europe.

7. Numbers should be written on separate samples of the fruits, seeds, flowers, or wood of the same plant, which form the parcel the traveller sends, as well as on the samples of the same plant that he keeps, and on his catalogue or journal, so that he can afterwards give accurate information of the plants he sends. These numbers should not be repeated during the same tour, but should form a series, to avoid confusion.

If the traveller can measure, or knows the height above the sea of the regions he travels over, he should add to the note relative to each plant a statement of the height where it was found; the exact height is not necessary. If he does not know the height, the omission can be partially remedied by the most remarkable and abundant vegetables that grow around.

Dry fruits should be sent in boxes with a label and number corresponding to that of the branch of the plant, in the herbal, to which they belong. All the dry fruits, of too large size to be well preserved in herbals, should be

collected separately, the ripest chosen, dried carefully and wrapped in paper. Those of palms, pandanus, zamia, conifers, proteaceæ, lecythideæ, cucurbitaceæ, the leguminous family, the bigonias, bombaceæ, sterculiaceæ, especially deserve to be collected separately.

Pulpous fruits should be sent in weak alcohol at 18o, in acetic or pyro-ligneous acid dissolved in water, or in water saturated in marine salt, if these first two liquids cannot be had, but the preservation of objects is much less certain and less perfect in this fluid. Each kind should be put in a separate jar and enveloped in cloth, flax or cotton, or if several kinds are put in the same jar, each kind should be put in separate bags with special labels.

Among the pulpy fruits that deserve to be collected, we shall particularly point out those of several palms, many of the bromiliaceæ, resembling the ananas, aroideæ, sapoteæ, and diospyreæ; several annonaceæ, the pulpy-fruited caparideæ, papayers, the soft-fruited cucurbitaceæ, guthifers, aurantieæ.

It is desirable that flowers too delicate or too pulpy to be easily analysed when dry, should be, also, sent in flasks of weak alcohol or acetic acid much weakened with water; such are those of the orchides, balisiers, aroides, asclepiades, and all other plants difficult to preserve in herbals. It is important to tie on the flask a label marked with the name of the plant, or at least, a number corresponding to that which designates the same plant in the herbal. As labels on jars frequently fall off, it would be best to mark the jars with paint, or to put in each jar a bit of wood or parchment bearing the number, or a label written with crayon or ink, or if the objects are in alcohol, on thin pieces of lead marked with a knife. When several plants are put in the same jar, a label, thus marked, should be attached to each. Without this precaution, the collection would be of little value. Flowers of the different species should not be put

in the same phial. If it is ever necessary, a label should be attached to each. Or they should be put in paper pasted together, with the necessary specifications on the envelope.

If there is neither phial nor alcohol, the flowers may be dried in the air without pressing, and then folded in paper and labelled; care being taken to put them up, so that there may be no danger of pressure.

Entire specimens in flower and fruit of parasites with their roots and the bark in which they are embedded should be preserved in alcohol, or vinegar, or salt-water. Males and females of these plants, in which the sexes are generally separated, should be collected.—The plants are generally remarkable for their absence of leaves, for their pulpy consistence and creeping character.

Herbals and fruits, when perfectly dry, should be put in tin, or, at least, well painted boxes, so as to be beyond the reach of mice or insects.

Leaves of paper containing plants, should be well pressed together in packets and placed between two sheets of plain paper before being put in boxes.

In packing up, several samples may be placed in each sheet of paper, and the number of leaves placed between be lessened, if necessary; the packets should always be well pressed together. Any kind of paper is good for packing; bananas, or any large-leafed plant, can replace it; it is only necessary that the plants be arranged with care, so as to give equal thickness to the packets in all their parts.

If there is time, the specimens should be preserved by plunging the dry plant in an alcoholic solution of corrosive sublimate (2 to 4 drams for a quart of alcohol at 56 degrees) or by putting on the solution with a pencil, and then drying it in a sheet of paper, which requires but a few minutes. With this precaution, all the specimens sent may be preserved; and for not making use of it

parcels of plants have often arrived damaged by insects.*

If the plants are fumigated with sulphur, they will be preserved from insects for a long time.

Among the specimens sent us there may be many that we have received before; but they will not be useless.

Plants preserved in herbals, which we already possess, will be employed in forming special herbals for different countries, very useful for the study of botanical geography and to facilitate the researches of travellers, either by making exchanges with foreign museums, or to enrich the principal museum of the departments.

Moreover, objects are constantly wasting by time, which it is useful to renew.

Collections of plants, from whatever country they come, have always some plants which the museum does not possess, or have them in a different state from those we possess, and so are always interesting, when well made; but there are countries little known, from which we desire to receive all that can be collected.

In North America: the Floridas and southern part of Louisiana, Arkansas and Texas, a great part of Mexico, particularly the northern part, as well as California, the southern part of Mexico, and the countries comprehended between the State and the Isthmus of Panama; the great isles of the Antilles, Hayti, Cuba and Jamaica, though formerly explored, are now scarcely represented in our herbals.

Botany is already cultivated with success in many countries. Travellers can, sometimes, find herbals al-

*The following mixture is an excellent wash for plants, recommended by the late Sir J. E .Smith, and well known to Botanists as "Smith's Liquid:"—Alcohol, 1 pint—camphor, 2 drs.—corrosive smblimate, 2 drs.—used with a camel's hair pencil.

Plants well dried and kept in a clean room, free from moisture, scarcely ever suffer from the attacks of insects in our climate.—A. YOUNG. JR.

ready collected. It would be useful to procure them, especially if they have but a short time to stay or even a single season, after assuring themselves that these herbals are made with care. This would be important, especially in countries where the flora has been treated by some resident botanist, and the kinds and species proper to these local floras should, if possible, be obtained.

Collection of wooden stalks or trunks of trees.

Collection of the trunks of the *monocotyledons* and ferns, should be made in a different manner from those of the *dicotyledons*. For the first, such as the palms, vaquois or pandamas, the dracœna or dragoniers and the ferns in trees, etc., which vary in height according to the age of the trees, it would be desirable to obtain grown and entire trunks, from the root to the top of the tree, when transportation can be effected without difficulty or expense. But when the size of the trunk and the difficulties of transportation are so great that it cannot be conveyed entire, it should be sent in three pieces of about 80 inches each in length; taken, the first at the base with the roots, the second in the middle, and the third from the top with the first cluster of leaves. When the trunks are very large, damp and hard to dry, it is well to quicken their drying, by splitting them lengthwise through the middle; but the two halves should always be sent and a round piece cut crosswise from two to three inches thick.

For the dictyledonous vegetables, one of the principal trunks or a perfectly healthy branch should be taken, and a portion of it 16 to 18 inches long preserved; the size best suited for samples is from 3 to 6 inches in diameter. Generally the age of the trunk or branch should be such as to have at the same time perfect wood and sap-wood. For the kinds of wood used for the building, it is desirable that the samples should be taken from trunks large enough to give an idea as to the physical

qualites of the wood. The samples should be sent with the bark entire. If there is danger that they will not dry well, they should be sawed lengthwise, at some distance from the pith, so that it may remain perfect on one of the pieces, and even in that case, it is well to send, besides the two halves of wood sawed lengthwise, an entire round of from 2 to 4 inches thick.

The samples of trunks, whether monocotyledons or dicotyledons, should not be boxed, or sent off, before they are perfectly dry. Until dry, they should be kept as much as possible, from insects. To give interest to these samples of wood, it is indispensable to label them with numbers corresponding with those of the leaves and flowers or fruits, dried botanically, so that they can be determined with precision.

These numbers should be written on the wood very plain, either with ink or black crayon; or, better still, with paint. When the samples are few, they can be notched or marked with Roman characters cut deep in the wood. It is very important either in the catalogues, or in the labels of the samples in the herbals, to write the common names, which the trees bear in the country where the samples were gathered, because these names are more generally known of the large vegetables than those of small plants; and by this precaution new information can be more easily obtained concerning them.

After having indicated the manner of making collections, we shall now go on to particularize the vegetables whose trunks we especially desire to obtain.

The collection of the museum is already rich in trunks of arborescent ferns. Yet it possesses but very few of those which do not belong to the tribe of cyathees, such as the diplazium, dicksonia, lomaria, angiopteris.

Among the woods of the dicotyledonous trees, we shall place in the first rank all the woods employed in the arts, and particularly in cabinet-making and dying; woods which we receive only in the state in which commerce brings them to us, and which it would be very interest-

ing to have complete with their pith and bark, and especially with a branch in flower or fruit preserved in an herbal, which might facilitate the determination of their scientific appellation. With the exception of a small number of woods of Brazil, which we have received in this manner, we have every thing to ask in this respect from Brazil as well as from Guyana and the Antilles, and samples suited to clear up the history of different sorts of cabinet woods, iron-woods, palissander, yellow woods, etc., would be of great interest. We shall cite, besides, the wood of the fig-tree, sycamore of Egypt, employed by the ancient Egyptians; those of the meliaceæ or cedrelaces of India, and that of the flindersia of New Holland.

For the illustration of vegetable anatomy and physiology, the other trees, which do not furnish woods employed in the arts, are not less interesting, and all should be collected; but the branches need not be so large, say from two to three inches in diameter. The countries which have not yet furnished any thing to our collection, and in which are to be found objects that we want, are, in the ancient continent, Arabia, Persia, and, above all, China, Cochin-China, and the great islands of Asia; New Holland and Van Dieman's Land, whose vegetation is peculiar and from which we have as yet hardly a single sample of wood; Senegal, the Cape of Good Hope, Madagascar and Abyssinia; in the new continent, Mexico and California, Peru, Columbia and Patagonia. In these different localities, should be procured not only specimens of wood from large trees, but the principal stalks of shrubs and of the great ligneous plants which never attain the same size in our climate. But among the dicotyledonous vegetables there are none that merit the attention of naturalists so much as the creeping ligneous plants known as lianes. Almost all these plants present a remarkable structure, more or less anomalous, which may throw light on the mode of increase and nourishment of vegetables. Specimens of these plants, col-

lected by MM. Gaudichaud, Perrottet, Guillemin, and Melinon have already suggested valuable ideas. But there are yet many gaps to fill up, and persons living in warm countries could supply us with important documents, by collecting not only portions of all these plants, but by sending pieces of the stalks of sufficient size taken from the foot of the oldest trees with the roots of younger trunks: young branches of from one to two years old, and branches with leaves and flowers dried botanically. The essential point would be for each kind to have the succession of its different ages from the branches of the first year with the leaves, flowers and fruits, up to the oldest trunks; and the samples could be easily gathered when the great trees are cut down in the forest, round which twine these parasites. The common names which they bear in their country should be marked with care both for the creepers and trees, as well as the virtues ascribed to them, and the uses to which they are applied. It is essential for most of the parasites, even when they are not of large size, and especially of those which contain much water, like the trunks of the cissus, to cut directly pieces some inches thick, as their organization is better preserved than that of the larger trunks.

All the different pieces coming from one trunk should be labelled with the same number.

Vegetable Products.

We comprehend under this designation all the parts of vegetables or products of the vegetable kingdom, which are of sufficient interest to merit collection; such as vegetable fibre employed in the fabrication of tissues or cordages; natural tissues coming from the preparation of the bark of trees; paper, made directly from certain plants; starches, with the starch prepared at the place where the plant grows; tubercles, root, branches and seeds from which it is extracted; gums, sugars, resins,

vegetable wax, and other concrete substances elaborated by vegetables; dye-stuffs; also, roots, barks, leaves or fruit, used either in medicine or the industrial arts.

It is essential, as much as possible, to connect these objects with the specimens of the plants in the herbal which produce them, by means of the numbers and the writing on their labels; and to give the common name both of the plant and the stuff used, and the uses to which it is applied.

Specimens, gathered with these precautions, in the countries where these products are developed, would be interesting, even of the objects which generally arrive in Europe through commerce: for, in a great number of cases, the origin of these stuffs is obscure, the distinction of ther kinds and qualities not well understood, and many of them are adulterated before they reach Europe.

It would be well to send a sufficient quantity of each of these stuffs for all the experiments which may be judged interesting; from two to four pounds would generally be a suitable quantity.

The stuffs that are liable to be attacked by insects should be placed, well dried, in boxes, bottles or earthen jars perfectly sealed.

Vegetable Anatomy and Physiology.

Many objects useful for extending the study of these branches of botany are comprehended in the collections of trunks, fruits and dried plants which we have already particularized; we recommend, here, under this special title, the collection of specimens which would show the deviation from the usual structure of vegetables, or those which must be preserved in a particular manner in order to be submitted to observation. Such are:

1. The results of experiments tried, frequently, for a different end, on vegetables which do not grow in Europe—

Thus trunks of the palm trees on which are made notches, or perforations, to extract the sweet sap that oozes from them.

The trunks of dragoniers (drocœna) on which these punctures have been made from a time more or less remote.

Examples of punctures more or less entirely grown over, on the trees whose wood is very different from that of indigenous trees, such as the very soft woods of baobab, the paypayers, and on the very hard woods, as iron wood, ebon, etc.

2. The excrescences and other anomalies of the development of woods, by knowing exactly the tree on which they have been observed or gathered.

3. The parasitical plants inserted on the trunks or roots, which bear them, such as the loranthus, viscum, and other parasites on the branches, the rafflesia hydnora, balanophara on the roots These specimens, showing the parasites still fixed on a portion of the plant, which nourishes them, ought to be preserved dry for the ligneous species, and in alcohol for the herbaceous or pulpy species.

4. Monstrosities, or anomalies of structure of flowers and exotic fruits, preserved in alcohol.

Fossil Vegetables.

The collections of this kind at the museum have, in the last few years, greatly increased, and the researches of travellers and correspondents of the establishment are constantly adding to their importance. At the present time, these collections comprehend, almost entirely, the fossil vegetables of Europe; yet, it is known that the soils that produce them are found in the most remote parts of the world, and the comparison of fossils coming from a great distance would be of great interest for geological theories. Thus, coal fields, so rich in fossil plants in Europe, are excavated at a great number of points in North

America, in the East Indies, in China, and New Holland, and are found, without doubt, in other places: the mines of the United States have been explored with care for the fossils which they contain, and have already supplied our galleries with numerous specimens.

It must not be forgotten that, to classify exactly these fossils, a considerable number of specimens is frequently necessary, and that a collection of all the varieties found together in the same locality is a matter of the first importance. A large number of specimen should therefore be collected and sent, especially from distant localities.

Specimens should especially be procured, which present the stamps of leaves entire and perfectly marked, also the trunks which still show the carbonized bark which covered them, and the impressions of the insertions of the leaves that they bore, and also characterized fruits, such as those analogous to the cones of the pines, the fruits of the palm trees, etc.

Coal fields, although more rich, in general, than any other in vegetable fossils, are not the only ones which contain them. The secondary formation, and the tertiary, present also numerous impressions of leaves, of branches, of flowers even and of fruits, whose succession at different epochs of formation, and comparative structure in various countries of the world, are not less interesting. Their acquisitions cannot be too strongly recommended; but it is necessary, as much as possible, to join to these fossils the animal fossils which may accompany them, which will better tend to determine the epoch of the formation of the deposit which contains them.

There is still another class of vegetable fossils which, in latter times, has acquired more importance than has been given to them before; they are petrified woods, whose interior organization, we are, by a new process, able to study, and to compare them with living woods. These woods are found in the deposits of every epoch, and in countries the farthest separated. They belong to

families and classes very different, and hence their examination is very important. It should be recommended to persons, who meet with them, to collect them with great care, selecting those pieces, which appear to differ, not only in their exterior form, but in their interior structure.

It is not necessary to send large specimens of the characteristics which distinguish them as regards their interior structure, and especially of the dicotyledonous woods with concentric layers. It is best, on the contrary, to break them neatly with the hammer and reduce them to the size of about three or four inches each way. The only large pieces which ought to be preserved are those of the monocotyledons, such as the woods of palms, and the woods which would be analagous to the trunks of the tree ferns; for these, it is necessary, as much as possible, to have the trunk entire from the centre to the surface, with a length of from eight to twelve inches. Among places where the most remarkable and varied fossil woods have been found, we would mention the little Antilles, and above all Antigua, Saint Lucy and the Martinique. The museum possesses but few specimens from these places.

All the specimens of fossil plants, which may be addressed to the museum, should be wrapped with care in two or three papers; those which have delicate impressions should be covered on their face with cotton or lint, especially if the rock or stone is tender. If the samples are thin and fragile, as is often the case with impressions upon slates, they should be placed in separate boxes. The boxes should be proportionate to the size of the samples, so as to be filled compactly, that they may not be shaken in transportation. Fossils should not be put in the same case with dried plants, or in glass cases. Without these precautions these specimens would be rubbed and the impressions be effaced.

Section III.—Zoology.

Invertebrated Animals.

Zoophytes, Worms and Mollusca. The sea is peopled by an almost infinity of animals, soft or gelatinous grouped as mollusca, worms or zoophytes, some of which live isolated, and others in societies. The greatest part of these animals is little known, and their study is therefore very important, as they give general notions on the organization of beings and on the diversity of forms under which living nature shows herself.

Surgeons and amateurs of natural history, travelling on board ships, might procure us a great number of these curious animals.

It is sufficient to take them with a net, to wash them well in warm water, and then to put them in alcohol, with the precautions that we shall point out, and to prepare a note indicating the latitude of the place where they are taken—whether they live solitary or in society—whether they are phosphorescent, and whether they live at certain depths or at the surface of the sea. The colors of gelatinous animals not keeping well in alcohol, should be mentioned in the note.

Rocks, sea-weed, and the bottom of the sea, are often covered with masses of a gelatinous flesh colored substance, that may be mistaken for lifeless bodies; yet they are formed by the aggregation of a crowd of little microscopic animals, whose organization is very varied. Care should be taken to remove them with the blade of a knife; and these beds, not generally very thick, should be plunged in spirits of wine, taking care to note their color, which quickly disappears.

It would be useful to collect numerous sponges, and to preserve them in alcohol.

There are, doubtless, in the depths of the sea, multitudes of animals which do not appear on the surface, and which are entirely unknown. These may be obtained

with the drag, which should be frequently used in depths from several fathoms up to one hundred and fifty fathoms.

Not less care should be taken to collect the land shells than those of the sea. Fossil shells are likewise of great interest.

Very frail shells, oursins, sea-stars, etc, should be wrapped in cotton, and placed in a box, each by itself. It would be well to wash in chalk water oursins and sea-stars; the greatest number possible of these animals should be preserved in spirits of wine, taking care to surround them with thread or fine linen or cotton, and, afterwards, wound with thicker linen or several turns of thread, so as to hinder the points or spines from falling off. The madrepores of a certain volume should be fixed by wire to the bottom of the box in which they are placed, but these frail substances would arrive in better order if each specimen was placed in a box by itself.

The shell-fish should be placed in alcohol. The outer shell, when it is spiral, should be punctured at the upper part and at several points of the spire, to let the liquor run in, so that the whole animal may be preserved. It is possible, by following this indication, to have shell-fish in such order that they may be dissected, even after being a very long time in the collections.

In a calm or gentle breeze, it is well to have ready a gauze net for taking the sea mollusca, whose number is considerable. The net should be watched and drawn several times a night, for it is probable that the spirule will be found at the surface of the water. Fishes should be opened to find this same spirule, which is doubtless caught by them. The other cephalopodes are not less numerous, nor is their study less interesting.

There is a class of animals called marine worms, or annelides, of which but a few kinds are known, because little pains have been taken to collect them. These animals are common on the shores of the sea. A great number live in the interstices of madrepores, and several make deep holes in the sand, or in the mud. With spades

and hammers they could be easily procured, and it would be necessary to preserve them in alcohol. As the greatest part of these kinds make themselves sheaths, it would be well to collect them and put them in spirits of wine. Ordinarily these animals quickly change color; it would be well to note their color; especially to do this for the leeches, whose colors disappear as soon as they are dead. The attention of naturalists should be directed towards the lombrics or earth-worms. These animals could be sent us alive, as well as the land mollusca, by sending them in closed boxes containing a little earth or damp moss.

It would be well to look for the entozoaires or helminthes of different animals and send them, declaring at the same time the animal and viscera whence the worm is extracted.

Articulated Animals.

Articulated animals (viz: insects, spiders, crustacians, etc.,) compose the most numerous family of the animal kingdom: collections made in distant countries include generally a considerable proportion of new varieties, and the capture, preservation and transport of these little beings offer no serious difficulties. We recommend, in a special manner, to the attention of travellers, entomological researches. Undertaken with zeal and intelligence, even by a person who is not a naturalist, they cannot fail of being useful to science and important for the museum. In this, as in the other branches of zoology, it is not the large and brilliant kinds which are most sought by the naturalist; because it is generally among the small insects or those of plain colors that the more novel forms are found; for collectors have ordinarily neglected them, and even in the best explored regions (in the environs of Paris, for example) are discovered varieties which, till recently, have escaped attention. As for the manner of forming these collections, and the par-

ticular indications relative to the classes into which is divided this vast division of the animal kingdom, we shall give to each of these groups a separate article.

Insects.

What we have said of articulated animals in general, is particularly applicable to insects, whose number is immense, and whose forms vary beyond all imagination. The kinds differ extremely from one country to another, often even from one locality to another in the same country, and it is rare to find perfect identity between insects which inhabit different regions, though often at the first glance, no difference can be detected between them; besides there is no point on the globe where the entomologic faun is completely known, and although our museum has about eighty thousand kinds, our galleries do not include half that are seen in looking through the different collections of Europe. It results that, in all countries, travellers, who occupy themselves with entomology, can render themselves useful to the museum, and, in distant countries, they should not neglect collecting all the insects they find, even the kinds that do not appear to differ in any thing from those found every day at home. There are some parts of the globe, which, entomologically, deserve to fix the attention of the collector, either by reason of their extraordinary richness, or on account of the small number of parcels yet sent from them to the museum. Such are the west parts of Africa, from the gulf of Benin to the cape of Good Hope, the Birman Empire, Assan, and even the interior of India, whence the English entomologists receive so many remarkable varieties, Borneo, the Philipines and the neighboring isles, the western and northen part of Australia, the west coast of North America, from Mexico to Behring's strait, and the great basins of the Amazon.

In general, entomologists content themselves with collecting insects without studying the manners and mode of

life of these animals; yet they thus fulfil but a part of their duty, for it is necessary, for the progress of science, to have exact notions on this subject. Thus, it is well to indicate, whenever it is possible, not only the locality where the insect is found, but, besides, the nature of the locality, the names of the plants on which the variety is found, and all the particulars relative to its manner of life. It would be interesting to have samples of the products of the industry of these little beings, nests of bees and ants, the combs of wild bees, cocoons, etc. The stuffs supplied by insects and used in the arts, are equally important to collect and study with regard to their mode of production. Besides, we shall call the attention of travellers to the alteration made by insects in the plants they inhabit, the manner many of them pierce the bark of trees or even the wood; eat or roll the leaves, or cause in them, by their stings, excrescences, etc. Specimens of these alterations would be of great interest to entomology, especially when united with the insect that occasions them.

We urge travellers, likewise, to look for cheniles and the other larvæ, and to preserve some of them alive, in order to obtain a perfect insect, or at least, a crysalis. Larvæ whose origin is unknown would be of little interest to the museum, while a collection, in which each larva is united with the perfect insect, would be of great value.

Besides, the insects that live as parasites on other animals should not be neglected.

Insects are easily caught, and need few instruments. The best way to take a great number of these animals at a time is to throw quickly on the plants of the meadows and lawns a cloth sack whose mouth is attached to a circle of iron, fixed at the end of a stick. By directing this instrument alternately right and left, even the fleetest insect cannot get out, and all those that are caught by its movement are driven to the bottom of the sack. They should be taken out one by one, either with

the hand or pincers, and pierced immediately with a pin proportioned to the size of the animal. The coleopters should be pierced on the right wing (clytze,) the hymenopters, dipters and lepidopters in the middle of the waist, the orthopters and neuropters a little behind, between the base of the wings.

The small kinds, whose shells are hard enough, as the coleopters and the most part of hemipters, for example, instead of being fastened with pins may be placed in little bottles or in flasks containing rolls of paper or cotton, if paper is wanting. This method is even applicable to the larger kinds, and should be employed when there is not time to impale, with care, the insects that are caught. The small insects with soft bodies should be preserved in alcohol, for drying frequently deforms them to such a degree that they cannot be recognized. Caterpillars should also be preserved in alcohol, as well as other larvæ, and it would be well to place with them a certain number of the mature insects, so that a part might be taken for anatomical researches.*

Butterflies are taken by the aid of a gauze net or sack. These insects are found chiefly in fields where flowers abound, and on the leaves of trees; but they must be sought too in dark places, for, during the day, the night kinds are here asleep upon walls or bark of trees. With a little skill they can be pierced without seizing them before hand, and if there is fear of missing them thus, they should be covered with the gauze pinewa, through which the pin can be passed. When the air is calm and the night obscure, they can be easily taken by means of torches, for it is sufficient to place a light in a low and open place to attract a multitude of phalanes and other

* Catterpillars may be kept in perfect preservation in the following liquid:—Alcohol, 12 oz.; distilled water, 1 lb.; corrosive sublimate, 2 drs.; burnt alum, 3 oz, Macerate for 24 hours. When used, add one-third water. The phials should have a diameter one-third larger than that of the insects they are to contain.

nocturnal insects. But to have handsome lepidopters, it is best to obtain caterpillars, feed them with the leaves of the plant on which they are found, and pierce the butterfly as soon as he has undergone his change, for the specimens caught in their flight are rarely uninjured.

For the coleopters, it is not sufficient to beat the bushes and herbaceous plants. These insects should also be sought under the bark of trees, in the interior of mushrooms, under the stones, and even in the soil. For this, it is well to be provided with a paring knife, an instrument which is much like a carpenter's chisel, but which is slightly curved, and ends in a kind of pointed spatula.

Aquatic insects are taken by the help of a net like that used for insects of the air, but whose bag should be of canvass instead of cloth. In fine, to catch the hymenopters, whose sting is often formidable, it is necessary to have pincers whose prongs are disposed like rackets and armed with coarse lace.

The preservation of insects that have been pierced requires some care. To prevent the lepidopters from injuring their wings in struggling, it is well, directly after they are caught, to press the thorax. On returning from the chase, the insects that have been caught should be killed by placing them in a dry tin box, and partly immersing it in boiling water. The high temperature will kill them in a few minutes. The boxes designed for the reception of entomologic specimens should be of light wood, and, at least, 2½ inches deep: the bottom should be lined with cork or some other very soft vegetable substance, and the pins should be pressed in as much as possible. When the insects are large, it is necessary, besides, to fix them by means of several pins placed around; for if one of them gets loose, he not only injures himself, but likewise damages all which he jostles. As soon as the box is full and the insects dry enough, it should be shut and pasted with bands of paper on all the joints: but in warm countries, where destructive insects abound,

this precaution is not sufficient; the boxes should, besides, be placed in a tin chest, soldered on all sides.

Arachnides.

Animals of this class are less numerous than insects, but they merit the attention of travellers. Certain kinds live in the water, but the greatest part are land animals, and live in shrubs or in holes, either in old walls or in the ground. The industry that many spiders display in the construction of their dwellings or in snares designed to catch their prey, is very remarkable; the nest of the mygales, for example, is exceedingly curious. It would be interesting to have a collection of threads spun by exotic spiders; and the preservation of their delicate tissues is easy enough, if they are spread out on a leaf of paper dipped in gum-water. It is perhaps superfluous to add that these specimens would have little value, unless each one is accompanied by the spider that produces it.

In fine, the kinds reputed venomous, and those which live as parasites on other animals, should be particularly pointed out.

The preservation of the arachnides* offers some difficulties. In drying, these animals lose their shape, and in alcohol, their colors, so that it is necessary, as much as possible, to preserve specimens of the same kind by these methods, and to take care to number them so that they may be easily identified.

Crustacea.

These animals are almost aquatic, and the greatest part inhabit the sea. Crabs are found generally near the

* The following preparation may be relied upon, and as the best out of a number of experiments for the preservation of this class. I have specimens of spiders which have been preserved in this solution nearly ten years, and yet with their colors perfect:—Alcohol, (80 de.) 2 parts; water, 3 parts; alum, 2 oz., to 1 pint.—A. Young, Jr.

shore in the hollows of the rocks and under the stones; but there are kinds which hide in the sand or live at great depths. Some live entirely in the sea. This is the case with such of the decapodes macroures as the langoustes and the salicoos; and it is generally by the aid of drags and nets that they are taken. But a more successful way of fishing for them is to sink to the bottom an open case, a kind of a basket whose mouth is in the form of a revsrsed cone; some carrion placed in the interior of this basket attracts the crabs, and, when once in, they cannot get out.

The small kinds of crevettines are found, in great abundance, in the midst of the sea-weed; and to catch them, it is necessary to place a certain quantity of marine plants in a vase full of sea water; the little animals that are in it quickly oxhaust the exygen dissolved in this liquid and they rise to the surface, where it is easy to take them with a spoon.

Other crustacea of a small size are found in the deep sea, and are taken in nets like the sea mollusca. Besides, there exist a great number of these animals which live as parasites on fish, (about the gills especially,) and by a collection of them science would be enriched with a multitude of new and curious specific forms. Until now travellers have almost entirely neglected the little crustacea of the order of the entomostracea, which are found in fresh water; and it is desirable that they should be collected in all localities.

The best means of preserving the crustacea is to plunge them in alcohol from 20 to 25 degrees, after having wrapped them in linen or leaves. The large kinds should be dried, by taking care first to take out the viscera that are under the shell; but the crustacea preserved in this manner are extremely fragile, and are rarely preserved entire.

Fishes and Reptiles. Although among sea fish there are several kinds which are found on different coasts, the greatest number inhabit particular shores and gulfs. It would be useful then to send those that are found in countries not yet visited by naturalists, and even the common market fish.

As for the fresh-water fishes, they differ, not only according to the country, but according to the rivers and lakes where they live. It would be well to send all that can be found.

Generally, any fish brought from a foreign market, with the name that it bears in the country, would be an acquisition interesting for science.

They should be put in alcohol, or, if too large, only the skin well dried, taking care to preserve the head, teeth and fins. It is essential that the fins should be stretched out in order to dry them well. For this they should be glued on paper.

Reptiles should also be put in alcohol, even if their great size only permits thus to preserve the skin, which is much better than to send it dried. In skinning snakes, it is necessary to leave the head, and to take care not to injure the scales. Great care should be taken, too, not to break the tails of lizards.

It would be desirable to send the skeletons of fish and reptiles too large to be sent in spirits.

These skeletons do not require much labor. It is sufficient to take off the flesh, and, afterwards, to dry perfectly, without taking them to pieces. The whole skeleton should be placed in a box with cotton or with very dry and fine sand. If it is too long, it should be separated into two or three parts.

The following indications will point out the reptiles which, in the present state of science, would offer the greatest interest for the collections of the museum :

North America.—*Testudo polyphemus* or gopher.
Cistudo blandingii, Holbrook.
Emys rubriventris, Leconte.
Emys floridana. ib.
Emys mobylensis, Holbrook.
Emys insculpta.* Leconte.
Emys oregonensis, Holbrook.
Emys hieroglyphica, Holbrrok.
Emys cumberlandensis, Holbrook.
Emys concinna, Leconte.
Emys troostii, Holbrook.
Emysaura serpentina,* Dum. Big. (large ones.)
Chelonura temminckii, Holbrook. (young and grown.)
Trionyx muticus, (large ones.)
Trionyx spiniferus,† (large ones.)

If possible, some living specimens should be furnished of each of these kinds, as well as those of all the other chelonians. Those reptiles, whose flesh is eaten, abound in the markets of the United States.

Rana mugiens,‡ or bull frog ; (living subjects.)

All the small kinds of lizards and serpents and all the batraciens urodeles, especially those with persisting gills,§ are desired.

Also rattlesnakes from the south, which differ from those of the north, preserved in alcohol.

We have very few reptiles from the Californias, Yucatan and Guatemala. *Boas*, the *crested basilisk*, and the *horrible heloderme*, a great lizard with tuberculiform scales, should be sent us.

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* These species are both common in the western part of Vermont, as is also the *Emys picta* of Schneider.

† This is the *Trionyx ferox* of most American herpetologists. It is known in Vermont as the Soft-shelled Tortoise, and some fine specimens of it have been taken in Lamoille river in Milton.

‡ This is the *Rana pipiens* of most American writers, and is very common in Vermont.

§ The Proteus, *Menobranchus maculatus*, so common at Winooska Falls, belongs to this family.

Cuba nourishes an immense number of reptiles which are entirely unknown to us, and our museum possesses only a very few of those found in Jamaica.

Birds and Mammiferes.

The study of zoology in the museum of natural history is not confined to the observation of the forms of animals, or to the descriptions of their organs. It proposes, besides, to examine their habits, their development, their instinct, and to see if they can be of any use. Formerly, nothing could be learnt of these essential particulars but by the relations of travellers. Establishments formed at great expense by princes or rich amateurs, to collect and take care of rare animals, were rather objects of luxury and curiosity than of study and science. But since we have had a menagerie at the museum, a new field of observation is open to naturalists. There, animals can be followed in all degrees of their developments, and their manner of living can be compared with their organization, which anatomy discovers after death. Positive knowledge can be acquired on the so important phenomena of copulation, gestation, birth, etc. The varieties which depend upon age can be distinguished from those which are produced by climate, nourishment, and by crossing races, and the difference determined, which really exists between species. If these animals are of a nature to render services to domestic economy or agriculture, and if they breed, there are the means to raise and domesticate them, and, so, to procure new resources. The vigogne, the lama, the alpaca, the tapir, the kangaroo, the casoa, and many others, will, perhaps, one day be very useful.

Considered with relation to science, there are few animals, strangers to Europe, which are not useful as a study. The history of the greatest part of them is yet very incomplete. That of the lion was not well known until after the lioness of the menagerie had whelps; it is also since two elephants have died at the menagerie of the

museum that an exact knowledge of the anatomy of this great quadruped has been acquired.

Travellers cannot be too strongly urged to neglect no opportunity to send us living animals when they have it in their power.

The small quadrupeds, chiefly those that burrow and hide themselves in the ground are little known. The bat tribe is still less so, and merits equally the attention and care of travellers.

Animals can easily be procured by applying to the natives of the country, who know where they are to be found and frequently meet them. They can take them in snares and bring them in alive. The young of quadrupeds and birds they can procure in consequence of knowing the lurking places of the former and where the latter build their nests.

The younger the animals are, the easier it is to accustom them to live in cages. They will require, at first, particular care; it will be well to feed them for some weeks on shore before shipment, and too much pains cannot be taken to tame them. An animal that is not frightened at the sight of those who take care of him, is always in better health and better endures the fatigues of a sea-voyage than one which remains wild; and there is scarce an animal that does not yield to kind treatment.

Nourishment in excess, when they are shut up, and without the power of taking exercise, would be injurious. The surest way of keeping them is merely to give them what is necessary.

After suitable nourishment, cleanliness is most necessary to them. On shipboard, some one can usually be found, who will take care of them, either for amusement, or a slight remuneration. It is essential to take precautions to prevent the animals being teased or irritated by passengers.

As there are always difficulties in the transportation of living animals, it will, in most cases, be necessary to

adopt the easier course, and forward the spoils of dead animals.

Quadrupeds can be procured either by sending hunters into the interior of the country, or by applying to the natives of the country. And larger animals, killed in places too remote to be preserved or transported entire, should be skinned, and the skin, with the bones of the head and the feet should be forwarded.

The mammifers of a size small enough to be enclosed in a jar or cask, should be put in alcohol Those, that are too large to be preserved in this manner, should be skinned, and care should be taken to send with the skin the feet and head, with the brain taken out; or if that cannot be done, the jaws, at least, should be sent. In preparing the head, care should be taken not to damage the skull. The brain can be extracted with care without increasing the occipital hole.

We shall speak, further on, of the means to be employed, and the precautions to be taken, for the preservation of the skins, and for that of animals placed in alcohol.

When the skeleton of the animal can be joined to the skin, a great service will be rendered to science. The officers can entrust with this care the surgeons of the ships, for whom this operation will be easy.

It is not necessary that the skeleton should be set up. After having boiled the bones, taken off the flesh, and dried them well, all those of the same animal should be put in a cloth sack with moss, sea weed, rolls of paper, or some other soft and dry matter, that they may not rub one against another. Those that are very frail should be enveloped with paper, and care should be taken not to lose any.

Hunters ought to take care to proportion their shot to the size of the birds, so as not to injure them. As soon as a bird is killed, the blood should be staunched as soon as possible, and a little cotton placed in the bill and nostrils of the bird, so that the blood that comes out may not injure the feathers, especially those of the head. If the

blood has been spilt on the feathers, dust should be put on them and renewed until they are dry; they cannot be made bright by rubbing them lightly between the fingers. After the bird is cold and the blood coagulated, it should be taken by the claws and tail, and placed in a roll of paper. These rolls are to be arranged in a box, so that the feathers may not rub.

Birds should be skinned like quadrupeds, and care should be taken to preserve with the same precautions the feet, bills and heads. Birds should be skinned more promptly than quadrupeds, because as soon as putrefaction begins, the feathers fall off. In opening the skin on the belly, care should be taken to separate the feathers so *that they be not injured.* Plaster or dust should always be put on the skin, in order to thoroughly absorb the moisture. The coccygis should be left with the skin. Without this, the feathers of the tail are in danger of falling off. It will be the same with the bones of the extremities of the wings. If the bird has a fleshy crest, the head should be preserved in alcohol. When there are several specimens of the same class, it will always be useful to send one in this liquor.

It is desirable to procure, at the same time, the male and female, and specimens of the same kind some young, others old; birds differing much according to their age. It is well to have also the eggs and nests.* To preserve eggs, a little hole is made in both ends, the contents are

* "A nest, before being placed in the cabinet or packed for transportation, should be thoroughly baked to destroy the insects. When it consists in whole or in part of animal matter as feathers, wool, and the like, soak it with "Smith's Liquid."

"Eggs are best prepared thus:—Pierce one end, break the yolk with a needle, shake the egg till the yolk and the white are mixed; then pierce the other end and blow out the contents; rinse the shell clean with water by a small pointed syringe. If there be a chick within, stick it in as many places as you can with a needle, and insert a strong solution of fixed alkali, or salt of tartar; shake it, and leave it until the next day—by this time a portion of its contents will be decomposed, and you can blow it out. Repeat this operation till you have emptied the shell."

blown out, and they are then packed in bran or very fine dust. Care should be taken to indicate the kinds by numbers corresponding to those of the skins of the birds that laid them. Without this, these sorts of collections are useless. The same precaution should be taken with the nests, which should always be packed in a different box from the eggs.

The skeletons of birds too large to be put in liquor should be sent, if possible.

It is useless to stuff birds. They take up too much room; and this operation, which can only be done by experienced persons, is better postponed till they arrive at the place of their destination. It is enough that the skins are prepared and well preserved.

After having pointed out, in a general manner, what would enrich our collections, we think it necessary to specify the animals, whose existence is known, which the museum is without, or has not in good order, or desires to procure.

North America.—All the mammiferes, which resemble our mole, preserved in alcohol.

The grizzly bear of the mountains; grown and young.

The empetra and all the marmots especially the small kinds.

The different kinds of condylures.

The saccomys.

The kinds *pseudostoma* and *diplostoma* of American naturalists.

The bearich porcupine, hedge-hog.

The lemming of Hudson's Bay.

The wolf and carniverous animals of the same region.

The antelope of the rocky mountains.

The mountain sheep.

The different kinds of foxes.

The ovibos, or musk ox, an animal yet scarcely known in Europe.

Labeilng and packing collections.

It is desirable that each one of the animals sent as skin, skeleton, or in alcohol, should be accompanied by a note which indicates with precision:

The country where the animal is found;

Upon what it lives;

Its habits, if they are known;

Its common name;

If it is useful or otherwise;

The uses of its skin, flesh, grease, etc.;

Popular and superstitions opinions concerning it among the natives of the country;

Its sex and age, if these are known;

The season in which it has been taken.

These notes, written in a little note-book, should have each a number corresponding to that attached to the objects to which they relate.

That there may be no confusion with regard to the place where the objects and notes are deposited, it would be best for the person who sends them to verify all the numbers and arrange them in such a manner that they form a series, so that it may be certain that such a butterfly belong to such a crysalis, such a shell fish to such a shell. These numbers should be written on parchment or squares of lead, attached with strong thread, either to the skin enclosed in boxes or to jars or casks containing animals. It is easy to have the numbers distinctly marked on bits of lead; then there will be no uncertainty about the characters.

Thin pieces of tin can also be used with the numbers engraved with a steel-point, and these can be attached to animals immersed in alcohol.

A little cord with knots should be attached to objects thus preserved and to those which are in boxes and very dry. These knots form two series separated by an interval; the first series marks the tenth, the second, the units; by this means any number can be specified. We even know by experience that the name of an object

written with ink on a piece of parchment can be attached with a thread; alcohol does not alter it.

We have now to speak of the means of packing the objects of zoology, so that they may arrive in France in a good state of preservation.

Objects sent are either parts of animals, or animals preserved in alcohol.

The skins of animals and birds may be attacked by dermestes and other analogous insects, in warm countries especially, unless great care is taken to prevent it.

The surest means is to use the arsenic preservative known by the name of Becœur's soap.*

This is the preservative employed in the museum, and its success is certain. It is well to use it, especially for rare and precious specimens, about whose preservation there is any cause of anxiety. It is wise to plaster the skins of birds with it, especially the claws and bill.

It is well, likewise, to plaster the naked parts of quadrupeds, such as the face and hands of apes.

Each bird or quadruped of small or midling size, thus prepared, and in the inside of which a little cotton is put, not to give it a form, but that the different parts of the skin need not touch, should be placed in a sack or enveloped in paper well closed, and these sacks should be ranged in a box, which should be well pointed, so that not only dampness but even air may be excluded.

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* Becœur's Arsenical Soap is made thus:—take "Arsenic pulverized, 2 lbs; Salt of Tartar, 12 oz; Camphor, 5 oz; White Soap 2 lbs; Lime in powder, 4 oz. Shave the soap into small pieces, put it in an earthen pan over a slow fire, add a little water, and while it dissolves, stir it with a wooden spatula; take off and add the tartar in powder; stir it well till the whole is amalgamated, then add by little and little the lime and arsenic; as it grows stiff, triturate it till a complete mixture is effected. Grind up the Camphor in a mortar with a little spirits of wine, or dissolve it in a sufficient quantity of the same; add this to the mixture when quite cold, but not before, as the least heat would cause it to evaporate; stir it well in and it is fit for use." In a glass jar it may be kept good for years. As the arsenic soap is a most deadly poison, too much caution cannot be used in keeping it out of the reach of children, and where it cannot be mistaken for something else.

The skins of large animals, too thick to be preserved, by means of arsenical soap, should be rubbed with salt. The skin of the animal should be stretched, covered carefully with salt within and without, and when, after several days, it is sufficiently saturated, it should be folded with the epiderm inside, and put in a box, or simply wrapped in cloth, straw or any other dry substance and kept as much as possible beyond the reach of dampness.

The means that we have pointed out are simple, easy and require little time.

We come now to the way of preserving animals in alcohol.

If they are quadrupeds, birds, reptiles or fishes of considerable size, each specimen should be wrapped in linen tied around the body with thread; if the animals are very small, like mice, small vipers, shell-fish or worms, the linen should be large; a certain number of these animals are placed upon it so that they do not touch; then the linen is rolled upon itself, so as to make a doll sowed with thread, that it may not unwind; afterwards, place the bundles side by side in a cask. When the cask is full, so that the bundles are packed close, it should be filled with brandy, rum or whiskey; generally some strong liquor; afterwards it should be pitched with care, so that the liquor may not escape. This method has two advantages: 1. Animals wrapped in linen cannot tear each other with their nails or spines; 2. The linen having imbibed the alcohol, if the cask leaks, the animal will not entirely dry; and when the casks are opened, as they should be several times on a long voyage, there will be an opportunity of filling them again with alcohol.

The spirituous liquor must be from 16 to 22 degrees of the thermometer of Baume; stronger, it destroys the colors of animals: it is used at 22 degrees only for mammifers. All spirituous liquors are equally good. The colorless are preferable.

Before wrapping vertebrated animals in cloth, an incision should be made in the breast and abdomen, to let the liquor run into the inside of the body. The opening should be very small, in the side, and not in the middle. If the mammifers are large, it is well to pour the alcohol in the intestine canal, either by the mouth or anus.

It is well to renew the liquor, after the animal has remained in it some time. This precaution is absolutely necessary when there are several animals in the cask to prevent their corrupting, and it is always well to arrange the animals so that they may not touch the bottom of the cask.

Note.—Persons who desire more particular directions for preparing and preserving objects of Natural History, than are contained in the preceding Instructions, will derive valuable aid from a number of the Library of Entertaining Knowledge, published at Boston, in 1831, entitled *Manual of the Practical Naturalist.* Several of the notes in the preceding pages were copied from that work.

[E.]

LIST OF

WORKS

PRESENTED

TO THE

STATE LIBRARY

BY

MR. VATTEMARE.

Preventive against Empirical Husbandry, or a Complete Manual of Practical Agriculture, (by the Marquis de Travenet.) Paris, 1845.

Commentary on the Rural Laws of France, with an Essay upon Local Usages. (E. J. A. Neven Derotrie.) Paris, 1845.

On the Making of Cheese in Italy with Plates—from the Italian, (by Tictor Rendu.) Paris, 1843.

Popular Manual of Agriculture, (by J. A. Schlipp.) 80 wood cuts; Strasburg, 1844. The most esteemed.

Ampelographic or Treatise on Vineyards, (by Count Odart.) Paris, 1845.

Agriculture, Industry and Politics of Germany, (by E. Jacquenun.) Paris, 1842.

Annals of the Society for the Culture of Silk founded 1837. 4 vols. from 1841 to 1846.

Advice to the Cultivators of Silk Worms, (by F. de Boullenno.) With Plates. Paris, 1842.

On the Art of Getting Silk from Cocoons, (Ferries.) Pamphlet. 1839.

Course of Agriculture, (Count de Gasparin,) 2 vols. Paris, 1844.

Colonization and Agriculture of Algiers, (by L. Moll.) With Plates: 2 vols. Paris, 1845.

Agriculture in the West of France. With Wood Plates, (by LeClere Choin.) Paris, 1843.

French Agriculture: published by order of the Minister of the Agricultural Department of

Du Nord,
Cottes du Nord,
Des Hautes Pyrenees,
De La Haute Garonne,
De L'Isere.

Abridgement of the Culture of the Olive: folio pamphlet: by J. P. Bombun: Dragsirnan, 1842.

Alternation and Succession of Crops: folio pamphlet: by Victor Yvart: 4to. Paris, 1843.

Proceedings of the General Council of Agriculture, Manufactures, and Commerce, from 1841 to 1846, inclusive: 3 vol. 4to.—1 vol. 1841 and 1842, and 2d and 3rd, 1845 and '46: Paris, 1845.

Notes on the Economy of Administering Wealth, and the Agricultural Statistics of France, (by C. E. Roger,) 1 vol. 8 vo: atlas folio, Paris, 1843.

Concerning Irrigation ad legem, Sept. 16, 1807, (by Alphonse de P.) 1 vol. 8vo: Paris, 1844.

Concerning the Management of Water Practice, those used for irrigation, (by James Ziovannetti,) 1 vol. Paris, 1844.

Annals de Harras (the turf) and of Agriculture, (published by an Agricultural Society,(periodical, 8 vols. 8 mo. Paris, for 1845-'46.

Complete treatise on the training of the Horse, (by E. Howel.) 1 vol. 8mo. Avranches, 1842.

Concerning the horse in France, (by Charle de Boigne.) 1 vol. 8 vo. Paris, 1843.

The Horse Question in a national, agricultural, and military point of view. 1 vol. 8vo. Paris, 1843.

On the state of Horse Breeding in France, its consequences, (by G. Count Girardin.) 1 vol. 8mo. Paris, 1844.

Twenty pages, or the horse question simplified, (by do. and Marquis de Torcy.) Paris.

French Stud Book, or register of the horses of pure blood, &c. in France. 1 vol. 8 vo, 3 vols. (vol. 2nd.) Paris, 1840.

On the Castration of Cows, (by P. A. Morin.) Pamphlet.

On Diseases of the Lungs in Cattle, with plates, (by O. De La Fond.) Paris, 1840 and 1844.

Guide of the Tenant and Landholder. (Pamphlet.) Paris, 1843.

Advantages of a non division of landed property.—Pamphlet, (by L. Gossin.) Paris, 1843.

Economy and Providence to a young farmer, (pamphlet.) Paris, 1840.

Influence of the several modes of rent upon Agricultural Products in France, (by Charles Ladoucette.) Paris, 1845.

Practice of sowing by the hands, (by M. Pichat.) Paris, 1845.

Agriculture in a part of Poitou, (by M. Sauzau.) Niort, 1844.

Agriculture classsified, or a complete and particular manual for the farmer. (by the Abbe Picard.) 1 vol. 8 vo. Niort, 1844.

Manual and Agriculture for the use of Farmers and

Primary Schools, (by V. Rendu.) Versailles, 1838.—Small 8vo.

Do. do. (by Jules Martinelli.) Bordeaux, 1846.

Elementary Treatise on Agriculture in the Department of the Seine, (by Ed. Leconteux.) Small 8vo. Paris, 1840.

Elementary Manual of the Farmer of Alsace, (by J. L. Stoltz.) Strasbury, 1842. Small 8vo.

Manual of Agriculture or Elementary Treatise on the Art of the Farmer, for Schools, (by M. L. Mole,) Nancy, 1841.

Primary Elements of Agriculture, for the use of Schools and Farmers, (by L. Bentz and A. J. Chrettin.) Paris, 1845. 9 vols. Small 8vo.

Elements of Rural Book Keeping, Theoretical and Practical, (by M. Amand Male.) Paris, 1841. Small 8vo.

Agriculture of Normandy or Practical Journal. 12 Nos. each. Periodical: 1844–45–46. Caen, 1844.

Sir Walter Raleigh spreading his Cloak at the feet of Queen Elizabeth.

A Mezotinto Engraving, presented to the General Assembly in the name of the Engraver, Mr. Girard.

ERRATA.

Page 5—6th line—for "paternal," read *fraternal.*

Page 9—2nd and 3rd lines—for "courtesy, amity, and," read *courtesy and amity.*

Page 9—21st line—for "latest," read *latent.*

Page 10—37th line—for "great," read *quiet.*

Page 24—line 17th—for "Persia," read *Prussia.*